

PRELIMINARY ACCOUNT ON NEOTROPICAL *CROTALINAE*
[*SERPENTES VIPERIDAE*]

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INTRODUCTION

During the last twenty years no attempt was made to list all Neotropical Pit-Vipers. Accordingly our object has been to list all recognized species, their subspecies, and to describe or revalidate several ones.

For practical reasons, the species of Northern Mexico, although belonging to the Neartic fauna were included here. In the interest of stability of zoological nomenclature two neotypes had to be designated.

We have been able to study "in loco" the following collections: American Museum of Natural History, Carnegie Museum, Chicago Natural History Museum, United States National Museum, Museum of Comparative Zoology, Museum National d'Histoire Naturelle de Paris, Leyden Museum, Naturhistoriska Riksmuseum, the collections in Linnean House in Upsala, Senckenberg Museum, Naturhistorisches Museum in Viena, British Museum, Institut Royal de Sciences Naturelles de Belgique, Museo Cívico de Milano, Zoologischen Sammlung des Bayerischen States, we also received as a loan, specimens from: Museo de Ciencias Naturales de Caracas, Museo de Biología de la Universidad Central de Venezuela, Museo de Montevideo, Stanford University, University of Kansas, University of California and the collection of A. Lutz, Rio de Janeiro.

Obviously there are still several collections to be studied, a task that would require more time and would reveal much to increase or even modify our tentative list.

Although it is evident that the *Bothrops* group should be divided in to several genera or subgenera, no attempt was done in this paper because such a subdivision requires full discussion of osteological and other morphological characters, out of the scope of present paper.

In the present paper (in the true interest of stability of international nomenclature) we admit a name as being "Nomen oblitum" only if a junior synonym was *used during fifty years*, and the senior name *never* used during this period.

Accordingly we submit the following list and descriptions with full understanding of its preliminary status, understanding that even with its shortcomings the time is ripe for such a summary and that its availability will stimulate contribution and critical evaluation.

AGKISTRODON Beauvois

AGKISTRODON BILINEATUS Günther

1863 *Aucistrodon bilineatus* Günther, Anna. Mag. Nat. Hist. 12(3):364

1896 *Aucistrodon bilineatus*; Boulenger, Cat. Sn. Brit. Mus., 3:521

1951 *Agkistrodon bilineatus bilineatus*; Burger et Robertson, Un. Kansas Sci. Bull., 34:214, pl. 253

Type locality: Pacific coast of Guatemala.

Range: Coastal region from Southern Mexico to Nicaragua.

AGKISTRODON BILINEATUS TAYLORI Burger et Robertson

TAYLOR'S MOCASSIN

1951 *Agkistrodon bilineatus taylori* Burger et Robertson, Univ. Kansas Sci. Bull., 34:213, 125:1-2

Type locality: 21 km. North of Villagrán, Tamaulipas, Mexico.

Range: Mexico, Tamaulipas, and Nuevo Leon.

AGKISTRODON CONTORTRIX PICTIGASTER Gloyd et Connant

TRANS-PECOS COPPERHEAD

1913 *Agkistrodon mokeson pictigaster* Gloyd et Connant, Bull. Chicago Acad. Scienc. 7:56, fig. 10

1918 *Agkistrodon contortrix pictigaster*; Klauber, Copeia, 1918:8

Type locality: Maple Canyon (Chisos mountains), Brewster County, Texas, USA.

Range: Known from Trans-Pecos, Texas, USA. Possible in the adjacent Mexican Territory.

BOTHIROPS Wagler

BOTHIROPS MEGAERA Wagler (Type species of *Bothrops*)

1824 *Bothrops megaera* Wagler, in Spix Serp. bras. sp. nov., :50, pl. 19



Type locality: Bahia, actually São Salvador, Bahia, Brasil.

Range: Coastal region from Alagoas to Southern Bahia.



Map I — Distribution of *Bothrops alternatus* in Brasil. Map showing Southern Brasil, States Rio Grande do Sul, Santa Catarina, São Paulo, Mato Grosso, Goiás and Minas Gerais.

BOTHIOPS ALBOCARINATUS Schreve

1934 *Bothrops albocarinatus* Schreve, Occ. Pap. Boston Soc. Nat. Hist., 8:130

Type locality: Pastaza River, between Canelos and Marañon River, Ecuador.

Range: Pastaza River, Drainage.

BOTHIROPS ALTERNATUS Duméril, Bibron et Duméril

THE "URUTU" PIT VIPER

1854 *Bothrops alternatus* Duméril, Bibron et Duméril, Erpt. Gen., 7:(2):1512, Atlas pl. 82 bis fig. 1 a 1a

1896 *Lachesis alternatus*; Boulenger, Cat. Sn. Brit. Mus., 3:543

1925 *Lachesis inaequalis* Magalhães, Mem. Inst. Oswaldo Cruz, 18(1):153 pl. 7-12-

Type locality: Vila de São Lourenço, on the "Lagoa dos Patos", 14 miles from Pelotas, State Rio Grande do Sul, Brasil.

Range: Argentine: Provinces of: Buenos Aires, Entre Rios, Corrientes, Misiones, Santa Fé, Córdoba, Santiago del Estero, Chaco, Tucumán, San Luiz, La Pampa, Rio Negro. Uruguai. Brasil: State Rio Grande do Sul, Santa Catarina, (except coastal region), Paraná and São Paulo (except Atlantic slope), Minas Gerais (only in the broad-leaved forests), Mato Grosso (only along the Paraná river and the extreme South-Center of the State). Paraguay (Southern parts only). (Map I)

BOTHIROPS ALTICOLUS Parker

1934 *Bothrops alticola* Parker, Ann. Mag. Nat. Hist., London 14(10):272

Type locality: 5 km. east of Loja, 9200 ft., Ecuador.

Range: Known only from type locality.

BOTHIROPS AMMODYTOIDES Leybold

PATAGONIAN PIT VIPER

1873 *Bothrops ammodytoides* Leybold, Excurs. Pamp. Argent., :80

1881 *Rhinocrophis nasus* Garman [syn. fide Boulenger 1885] Bull. Mus. Comp. Zool. Cambridge, 8:85-

1884 *Bothrops nasus* Berg., Acta. Acad. Cordoba, 5:96

1885 *Bothrops patagonicus* Müller [syn. fide Berg, 1885] Verh. Nat. Ges. Basel, 7:697

1895 *Bothrops burmeisteri* Koslowsky [syn. fide Berg, 1896], Rev. Mus. La Plata 6:369, pl. 4

1896 *Lachesis ammodytoides*; Boulenger, Cat. Sn. Brit. Mus., 3:543

Type locality: Northern Argentine.

Range: Argentine: Prov. of Buenos Aires (Southern), Chubut, Córdoba,

Mendoza, Neuquen, Rioja, San Juan, San Luiz, Santa Cruz, Tucumán (only in the mountains).

BOTHIROPS ANDIANUS Amaral

ANDIAN PIT VIPER

1923 *Bothrops audiana* Amaral. Proc. New England Zool. Club, 8:103

Type locality: Machu Picchu, Depart. Cuzco, 9,000-10,000 ft., Peru.

Range: Known from Department Cuzco, Peru.

BOTHIROPS ATROX Linnaeus (pl. V, figs. 1, 1a e 1b)

1758 *Coluber atrox* Linnaeus, Syst. Nat. 10th ed., 1:222

1824 *Bothrops furia* Wagler in Spix, Serp. bras. sp. nov., :52, pl. 20

1896 *Lachesis atrox*; Boulenger [partim], Cat. Sn. Brit. Mus., 3:537

Type locality: Restricted to Surinam.

Range: The equatorial forests of Colombia, Venezuela, The Guianas, Brasil, Peru, Ecuador and Bolivia.

BOTHIROPS ASPER Garman (pl. VI)

1833 *Trigonocephalus asper* var. n. c. *lanceolati* Garman, Bull. Comp. Zool. Cambridge, 8:124-

1896 *Lachesis atrox*; Boulenger [partim] Cat. Sn. Brit. Mus., London, 3:537

1918 *Bothrops atrox asper*; Morfin, Informe rendido por la Comisión Geográfica exploradora de Quintana Roo al Secretario de Fomento :1-57, 1-10 (not seen)

Type locality: Obispo Isthmus of Darien, Panama.

Range: Mexico: Campeche, Chiapas, Oaxaca, San Luiz Potosí, Tabasco, Vera Cruz and Yucatán. In the low and moderate elevations of Guatemala, Costa Rica, Honduras and Panama. In South America along the Pacific coast from Panamanian border through Colombia Southward to Guayaquil and Island Gorgona, Ecuador.

BOTHIROPS BARBOURI (Dunn)

BARBOUR'S PIT VIPER

1919 *Lachesis barbouri* Dunn, Proc. Biol. Sc. Washington, 32:213

1930 *Bothrops barbouri*; Amaral, Mem. Inst. Butantan, 4:232

1938 *Agkistrodon browni* Schreve, [syn. fide Schmidt 1941] Copeia, 1938(1)

Type locality: Omilteme, Guerrero, Mexico.

Range: Sierra Madre del Sur, Guerrero, Mexico.

BOTHIROPS BARNETTI Parker

BARNETT'S PIT VIPER

1938 *Bothrops barueti* Parker, Ann. Sci. Nat. Zool. & Paleont., 2(11):447*Type locality*: Between Lobitos and Talara, Northern Peru.*Range*: Northern Peru.**BOTHIROPS BICOLOR** Bocourt1868 *Bothrops bicolor* Bocourt, Ann. Mag. Nat. Hist. 10(5):2021878 *Bothrops (Bothricchis) bernouillii* Müller, Verh. Nat. Ges. Basel, 6:399, pl. 3, fig. A1896 *Lachesis bicolor*; Boulenger, Cat. Sn. Brit. Mus., 3:566*Type locality*: Saint Augustin de Sololá, Guatemala.*Range*: Pacific foothills of Guatemala and Mexico (Chicharas and Mount Ovando in extreme South of Chiapas).**BOTHIROPS BILINEATUS BILINEATUS** (Wied) (pl. I, fig. 1)1825 *Cophias bilineatus* Wied, Beitr. Naturgs. Bras., 1:483 (pl. in Abb. Bras.)*Bothrops* species *Cophias bilineatus* Neuw., Wagler Syst. Amph. :1741869 *Trigonocephalus (Bothrops) arboreus* Cope, Proc. Am. Phil. Soc., 9:1571896 *Lachesis bilineatus*; Boulenger, Cat. Sn. Brit. Mus., 3:565*Type locality*: "Vila Vigosa" on Peruihybe River (now: Marobá), State Bahia, Brazil.*Range*: The equatorial forests of Venezuela and the Guianas. In Brasil Ter. Fed. Amapá, and an isolated population in the tropical forests of the Atlantic slope from State Bahia to Rio de Janeiro.**BOTHIROPS BILINEATUS SMARAGDINUS** subsp. nov. (Pl. I, fig. 2a, 2b)*Holotype*: IBH 14731, from upper Purús river, State Amazonas, Brasil.*Diagnosis*: A *Bothrops* with prehensile tail; second upper labial forming anterior border of loreal pit; green color, with a yellow stripe on paravertrals; no yellowish red spots on dorsum; all middorsal and upper head scales heavily punctulated with dark; the upper labials uniform (in juveniles) or upper parts heavily powdered with dark (never distinct vertical bars). Dorsals in 22-29 series; ventrals 192-206; caudals 59-70; upper labials 7 (rarely 8).*Relationships*: Very close related to *Bothrops bilineatus* (Wied) but different by: a uniform green dorsum, all scales of dorsum and upper head heavily punctulated with small round spots; no vertical dark bars on upper labials, which

are immaculated in juvenils or powdered with dark in adults; the postocular dark streak, if present, not in strong color contrast; and presenting a lower mean of dorsal series.

Description of type specimen: IBH 14731, a female from upper Purús river, Amazonas, Brasil.

Rostral higher than wide, reaching the upper surface of head; internasals very wide, meeting largely; canthals large, separated by 3 scales anteriorly and 4 posteriorly; all head scales keeled; 7 upper labials; 11-10 lower labials, the upper labials strongly powdered with dark; lower labials powdered with dark; dorsals 27; ventrals 201; anal entire; 62-62 subcaudals. Color: greenish-brown (in alcohol). A yellow lateral stripe on paraventral and part of ventrals, limited below by a series of irregular cloudy spots which invade the yellow line at intervals of 2, 3 or 4 scales, giving a chain-like pattern (pl. 1, fig. 2b).

Tip of tail white; belly white, laterally a series of clouded spots, limiting the yellow lateral stripe. All dorsals keeled, except paraventral series, keel long and low; all scales (except the paraventrals occupied by the lateral stripe) heavily punctulated with dark, the vertebral region more heavily punctulated than lateral ones. Head 20,6 mm, body 478 mm, tail 73 mm.

Paratypes: Brasil: MNR 2910 Benjamin Constant, Amazonas; CDZ 1436 upper Purús, Território do Acre. Bolivia: CNHM (two specimens) Alto Chipiriri, Cochabamba (specimens without number collected by Bill MacLean); AMNH 6673 Prov. Cochabamba. Equador: UMMZ 89 032, Rio Pastaza, 500 m; 82 899 Prov. Santiago Zamora; AMNH 35 894 between Baños and Canelos; 49 051 Anga Cocha, Rio Bobonaza; 49 162 Caballo Cocha, Rio Tigre; NHRM 3169 Rio Pastaza; MCZ 36 906 Pastaza river between Canelos and Marañon river. Peru: AMNH 52 748, 52 583, 52 636, Iquitos; 52 279, 52 700 upper Cushabatay, 52 899 Mouth of Rio Tambo on upper Ucayali; 52 953 Contamana; 54 226 Rio Itaya; 52 273 upper Utoquímia; 52 664 Aquaytia; 53 422 Panya upper Cushabatay; 52 700 Cashiboya; 55 897 Mouth Rio Santiago; 55 706, 55 760 Pampa Hermosa and 55 871 without locality but together with specimens from Pampa Hermosa. CNHM 45 621 and 45 622 Yarinoch, Ucayali, Dep. Loreto; 81 466 Hda. Vila Carmen, Cuzco. MCZ 45 919 WSW of Pucalpa on way to Rio Aguahyba, Dep. Loreto.

Variations: Ventrals 192-206, caudals 59-70, dorsals 22-29.

Range: Known from Ecuador, Peru, Bolivia and Brasil, probably also in Colombia.

BOTHIROPS BRAZILI Hoge

BRAZIL'S PIT VIPER

1953 *Bothrops brazili* Hoge, Mem. Inst. Butantan, 25:15-21 + 7 fig.

Type locality: Tomé Assu on Acará-Mirim river, State Pará, Brasil.

Range: The Equatorial forest: known from Venezuela, The Guianas, Co-



Map II — Distribution of:

- — *Bothrops brazili*.
- |||| — *Bothrops erythromelas*.
- — — — — *Bothrops iglesiassi*.
- — *Bothrops jararaca* (in Brasil only).



Map III — *Bothrops cotiara*. Map showing Extreme Southern Brasil, States Rio Grande do Sul, Santa Catarina, Paraná and São Paulo.

lombia and Brazil, States of Pará, Amazonas and extreme North Mato Grosso. (Map II)

BOTHIOPS CASTELNAUDI Duméril, Bibron et Duméril

CASTELNAU'S PIT VIPER

- 1853 *Bothrops castelnaudi* Duméril, Mem. Acad. Sci., 23 [139 of Reprint] (No description)
- 1854 *Bothrops castelnaudi* Duméril, Bibron et Duméril, Erp. Gén., 7(2):1511
- 1861 *Bothriopsis quadricarinatus* Peter, Mb. Berlin Acad., 1861:359
- 1889 *Thanaothis montanus* Posada-Arango, Bull. S. Zool. France, 1889:344
- 1896 *Lachesis castelnaudi*; Boulenger, Cat. Sn. Brit. Mus., 3:544

Type locality: Unknown (Guichenot in Castelnau gives "Province du Goyaz", now State of Goiás, Brasil.

Range: Equatorial forests of Brasil, Ecuador and Peru.

This species will be divided in subspecies for one of which the name *quadricarinatus* Peters is available.

BOTHIOPS CARIBBAEUS (Garman) (Pl. II)

CARIBBEAN PIT VIPER

- 1887 *Trigouocephalus caribbaeus* Garman, Proc. Am. Phil. Soc., 24:285
- 1896 *Lachesis lanceolatus*; Boulenger [partim], Cat. Sn. Brit. Mus., 3:535
- 1964 *Bothrops caribbaeus*; Lazell, Bull. Comp. Zool. Harvard Univ. 132(3):250

Type locality: Sainte Lucia Island — restricted (Lazell l. c. :251) to Grande Anse, Sainte Lucia.

Range: Coastal lowlands of Northern part, except extreme North and Southern parts of Island Sainte Lucia.

BOTHIOPS COTIARA (Gomes)

COTIARA

- 1913 *Lachesis cotiara* Gomes, Ann. Paulist. Med. Cirur., S. Paulo, 1(3):65, pl. 8
- 1925 *Bothrops cotiara*; Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:53

Type locality: Marechal Mallet, State Paraná, Brasil.

Range: The Araucaria forests of Argentine (Misiones) and Brasil (States Rio Grande do Sul, Santa Catarina, and Paraná, also known from two localities in Southeast State São Paulo near the border of Paraná. (Map III)

BOTHIROPS DUNNI (Hartweg & Oliver)

DUNN'S PIT VIPER

1938 *Trimercosurus dunni* Hartweg & Oliver, *Oce. Pap. Mus. Univ. Michigan*, 390:6, pl. 1

1945 *Bothrops dunni*; Smith & Taylor, *Bull. U.S. Nat. Mus.*, 187:181

Type locality: Vicinity of Village of Tehuantepec, Oaxaca, Mexico.

Range: Mexico, the pacific slopes of State Oaxaca.

BOTHIROPS ERYTHROMELAS Amaral

1923 *Bothrops erythromelas* Amaral, *Proc. New England Zool. Club.*, 8:96

Type locality: Near Joazeiro, State of Bahia, Brasil.

Range: Known from Brasil, (the caatinga vegetation of States Ceará and Bahia) possibly also the other States with same vegetation. (Map II)

BOTHIROPS FONSECAI Hoge et Belluomini

FONSECA'S PIT VIPER

1959 *Bothrops fonsecai* Hoge et Belluomini, *Mem. Inst. Butantan*, 23:195, fig. 1-5-9

Type locality: Santo Antonio do Capivary, State of Rio de Janeiro, Brasil.

Range: Brasil: North East São Paulo, South of Rio de Janeiro and Extreme South of Minas Gerais.

BOTHIROPS GODMANNI (Günther)

GODMANN'S PIT VIPER

1863 *Botriechis godmanni* Günther, *Ann. & Mag. Nat. Hist.* (3), 12:364, pl. 6, fig. G

1868 *Bothrops brammanus* Boeourt, *Ann. Se. Nat. Zool. Paleont.*, 10(5):201

1878 *Bothrops (Bothriopsis) godmanni* Müller, *Ver. Nat. Ges. Basel*, 6:402, pl. 3, fig. B

1880 *Bothriechis scutigra* Fisher, *Arch. f. Nat.* :218, pl. 8, fig. 8-9

1883 *Bothriechis triangulifera* Fisher, *Oster. Prg. Akad. Gymm. Hamburg*, 1833:13

1896 *Lachesis godmanni*; Boulenger, *Cat. Sn. Brit. Mus.*, 3:545

1929 *Bothrops godmanni*; Barbour & Loveridge, *Bull. Antiv. Inst. Amer.*, 3(1):3

Type locality: Duenas and other parts at tableland of Guatemala.

Range: From Mexico (Chiapas) along the moderate to high elevations to Panamá. Known in Mexico only from a few localities.

BOTHIROPS HYOPRORUS Amaral1935 *Bothrops hyoprora* Amaral, Mem. Inst. Butantan, 9:222, pl. 7-8*Type locality*: La Pedrera, Colombia.*Range*: Known from a few localities from the equatorial forests of Colombia, Ecuador, Peru and Western Brasil.**BOTHIROPS IGLESIASI** Amaral

IGLESIAS PIT VIPER

1923 *Bothrops iglesiassi* Amaral, Proc. New England Zool. Club, 8:97*Type locality*: Near Fazenda Grande on the Right river-side of the Gurgueia River, State Piauí, Brasil.*Range*: Known only from Northern Piauí, Brasil. (Map II)**BOTHIROPS INSULARIS** Amaral

JARARACA ILHÔA (ISLAND'S JARARACA)

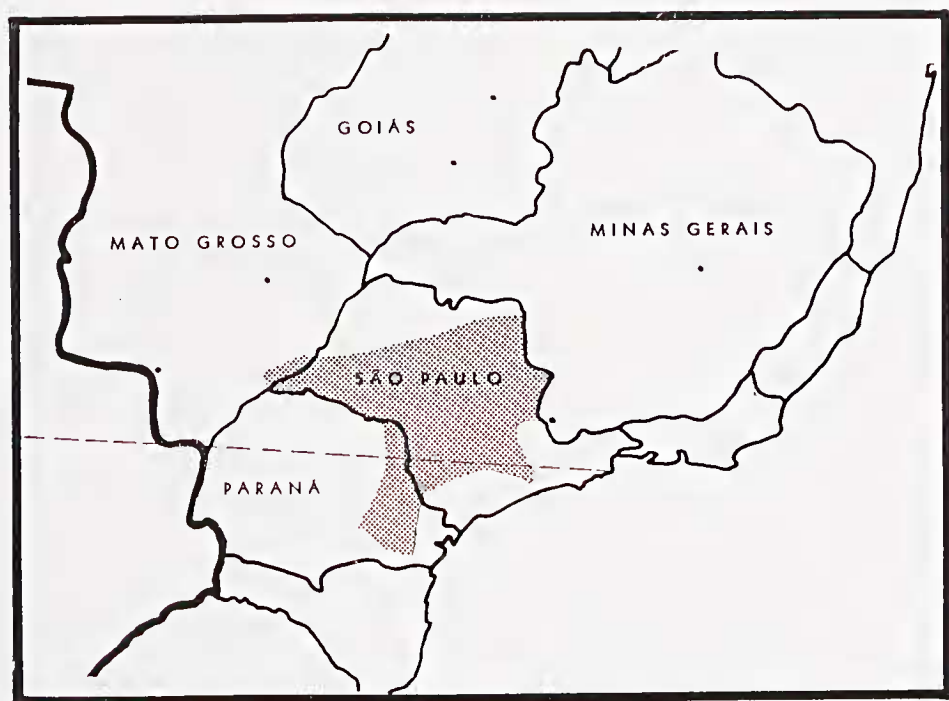
1921 *Lachesis insularis* Amaral, Anex. Mem. Inst. But. Sec. Ofiol., 1(1):18, pl. 3-4, fig. 1-51930 *Bothrops insularis*; Amaral, Mem. Inst. Butantan, 4:114*Type locality*: Island "Queimada Grande" on the coast of State São Paulo, Brasil.*Range*: Known only from type locality.**BOTHIROPS ITAPETININGAE** (Boulenger)

COTIARINHA

1907 *Lachesis itapetiningae* Boulenger, Ann. & Mag. Nat. Hist. (7), 20:3381910 *Lachesis newwiedii itapetiningae*; Ihering, [partim] Rev. Mus. Paulista, 8:3601930 *Bothrops itapetiningae*; Amaral, Mem. Inst. Butantan, 4:235*Type locality*: Itapetininga, State São Paulo, Brasil.*Range*: Brasil, from North Eastern Paraná through State of São Paulo and Minas Gerais, Northwards to Brasília, Distrito Federal, also known from one locality in State Mato Grosso (there is a specimen from Rio Grande do Sul but this occurrence must be confirmed. (Map IV)**BOTHIROPS JARARACA**

JARARACA

1824 *Cophias jararaca* Wied, Isis Oken 1824 (2):1103 (not seen, fide Klemmer 1963)



Map IV — *Bothrops itapetiningae*. Map showing distribution of *Bothrops itapetiningae* in States: Paraná and São Paulo. The isolated dots in States Mato Grosso, Goiás and Minas Gerais represent isolated localities from where specimens exist in the IBH collection. The absence of records from Northwestern State São Paulo are probably due to lack of adequate collecting.

1830 *Bothrops*... *species*... *Cophias jararaca* Neww., Wagler, Syst. Amph. :174

1896 *Lachesis lanceolatus*; Boulenger [partim] Cat. Sna. Brit. Mus., 3:535

Type locality: Espírito Santo, Brasil.

Range: Northern Argentine (Misiones), Paraguay and Brasil, States of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, extreme Eastern Mato Grosso, Rio de Janeiro, Espírito Santo and Southern Bahia, also known from the broad leaved forests of State Minas Gerais. (Map II, distribution in Brasil only).

BOTHIOPS JARARACUSSU Lacerda (Pl. X)

JARARACUSSU

1884 *Bothrops jararacussu* Lacerda, Leç. Ven. Ser. Brésil :8

1896 *Lachesis lanceolatus*; Boulenger [partim], Cat. Sn. Brit. Mus., 3:535

Type locality: Province of Rio de Janeiro, Brasil.

Range: Northeast Argentine, Brasil, States of Santa Catarina, Paraná, Mato Grosso, São Paulo, Southern Minas Gerais, Rio de Janeiro, Espírito Santo and extreme Southern Bahia. Paraguai and extreme Southern Bolivia.

BOTHIOPS LANCEOLATUS (Lacépède) (Pl. III)

THE FER DE LANCE OF MARTINICAN PIT VIPER

1789 *Coluber lanceolatus* Lacépède, Serp., 2:80, 121, pl. 5, fig. 1.

1830 *Bothrops lanceolatus*; Wagler, Syst. Amph., :174

1896 *Lachesis lanceolatus*; Boulenger [partim], Cat. Sn. Brit. Mus., 3:535

1952 *Bothrops lanceolatus*; Hoge, Mem. Inst. Butantan, 24(2):231-326, 1952.

1964 *Bothrops lanceolatus*; Lazell, Bull. Mus. Comp. Zool. Harvard Univ., 132(3):254

Type locality: Martinique.

Range: Island Martinique, in the wet regions, two disconnected populations, one in the highlands above Fort de France and Northward in the mountains to the mount Pellée massif and also along the coastal wet regions; the other one population confined to the Southern highlands, from Morne-Serpent and Morne-Vauelin to the hills between Trois-Ilets and Les-Anses-d'Arlets.

BOTHIOPS LANSBERGII LANSBERGII Schlegel

LANSBERG'S PIT VIPER

1841 *Trigonocephalus lansbergii* Schlegel, Mag. Zool. Rept. (1-3), pl. 1

1863 *Bothrops lansbergii*; Jan, Elenco Sist. Ofid., :127

1896 *Lachesis lansbergii*; Boulenger [partim], Cat. Sn. Brit. Mus., 3:546

Type locality: Turbaco, Colombia.

Range: Colombia, the arid and semi-arid region of the Costa del Caribe and Baja Magdalena.

BOTHIROPS LANSBERGHII ANNECTENS (Schmidt)

1936 *Trimeresurus lansbergii annectens* Schmidt, Proe. Biol. Soc. Washington, 49:50

Type locality: Subirana-Tal, Yoro, Honduras.

Range: Honduras.

BOTHIROPS LANSBERGHII VENEZUELENSIS Roze

1959 *Bothrops venezuelensis* Roze, Amer. Mus. New York, 1934:11

Type locality: Caripito, Monagas, Venezuela.

Range: Northern Venezuela.

BOTHIROPS LATERALIS (Peters)

1863 *Bothriechis lateralis* Peters, Mb. Akad. Wis., Berlin, 1862:674

1878 *Bothrops (Bothriechis) lateralis*; Müller, Verh. Naturf. Ges. Basel, 6:401

1896 *Lachesis lateralis*; Boulenger, Cat. Sn. Brit. Mus., 3:566

Type locality: Veragua and Volean Barbo, Costa Rica.

Range: Costa Rica and Panamá.

BOTHIROPS LICHENOSUS Roze

1958 *Bothrops lichenosa* Roze, Acta. Biol. Venez., 2:308, fig. 1-3-4

Type locality: Chimanta-Tepui, Estado Bolivar, Venezuela.

Range: Known only from type locality.

BOTHIROPS LOJANUS Parker

LOJAN PIT VIPER

1930 *Bothrops lojana* Parker, Ann. & Mag. Nat. Hist., 5(10):568

Type locality: Loja, Ecuador.

Range: Only known from the vicinity of type locality.

BOTHIROPS MARAJOENSIS sp. nov.

Holotype: IBH 18 143 from Severino, Island Marajó. State Pará. Brasil.

Diagnosis: A Bothrops with non prehensile tail; the second upper labial forming the anterior border of loreal pit; divided subcaudals, 7 upper labials (rarely 8 one side), ventrals 176-188 (180,5) in males and 178-194 (186) in females. The upper labials yellowish and in strong color contrast; very distinct dorsal markings in adults; the belly yellow but heavily checkered with black; a distinct, in strong colored contrast, postocular stripe forming a hook behind corner of mouth; the dorsal dark markings are bordered with a greyish light color, not unlike the one observed in *moojeni*.

NEUTRALIZING CAPACITY OF COAGULANT ACTIVITY IN UNITS OF ANTIVENIN *

Venom	Antivenom	
	<i>Crotalus</i> **	<i>Lachesis m. noctivaga</i>
<i>Bothrops</i>		
<i>atrox</i>	0,009	0,001
<i>asper</i>	0,03	0,03
<i>marajoensis</i>	2,5	1,4
<i>moojeni</i>	0,1	0,03
<i>pradoi</i>	2,5	0

* Data from Rosenfeld: Toxicon (in press).
In Rosenfeld's publication: *B. atrox* (South center) = *B. moojeni*; *B. atrox* (Maranhão) = *B. atrox*; *B. atrox* (Marajó) = *B. marajoensis*; *B. atrox asper* = *B. asper*.

** Antivenom prepared with a pooling of venoms from *Crotalus durissus terrificus* and *Crotalus durissus collilineatus* as defined here.

Relationships: Closest to *B. moojeni* and *B. asper* but distinct from *moojeni* by; the heavily dotted belly; the absence of nuchal elongated dots, and by the dorsal markings which are less pointed at middorsum. From *B. asper* it is easily distinguished by the unstippled light borders of dorsal marking and lower mean of ventrals. For differences in coagulant activity see text fig. 1.

Description of holotype: IBH 18 143. a adult male, from Severino. Island of Marajó, State Pará, Brasil, col. by A. R. Hoge at August 20, 1958.

Dorsals 30-25-21; ventrals 188; anal 1; subcaudals 60/60; upper labials 8-7; lower labials 9-8; rostral higher than wide; 19 dorsal markings each one formed by four distinct dots, the upper two fused, the lower ones separated from each other and from the upper two; the dorsal markings distinctly surrounded by a yellowish-grey light color; upper labials yellow with some small dark spots. A dark brown postocular stripe extending behind labial commissure; head above of

light brown and without marking except postocular stripe; belly yellow, checkered with black; tail also checkered below, and tip of tail light colored below. Head 38,3 mm, body 821 mm, tail 131 mm.

Paratypes: IBH 14 954, 18 144, 14 951, 14 952, 14 950, 18 142, 14 953 from same locality as holotype.

Range: Known from the savannah of Marajó, Brasil.

BOTHIROPS MEDUSA (Sternfeld)

1920 *Lachesis medusa* Sternfeld, *Senckenbergiana*, 2:180, fig. 1-2

1930 *Bothrops medusa*; Amaral, *Mem. Inst. Butantan*, 4:(1929):236

Type locality: Caracas, Venezuela.

Range: Caracas and vicinity.

BOTHIROPS MELANURUS (Müller)

BLACK TAILED VIPER

1924 *Trimeresurus melanurus* Müller, *Mitt. Zool. Mus., Berlin*, 11:92

1930 *Bothrops melanura*; Amaral, *Mem. Inst. Butantan*, 4:236 (1929)

1940 *Trimeresurus garciai* Smith, *Proc. Biol. Soc. Wash.*, 53:62, fig. 2

Type locality: Mexico.

Range: Mexico. Desert region of Southern Puebla and probably Northern Oaxaca.

BOTHIROPS MICROPHTHALMUS MICROPHTHALMUS Cope

1876 *Bothrops microphthalmus* Cope, *J. Acad. Sci. Philadelphia*, 8(2):182

1896 *Lachesis microphthalmus*; Boulenger, *Cat. Sn. Brit. Mus.*, 3:540

1912 *Lachesis pleuroxanthus* Boulenger, *Am. & Mag. Nat. Hist.*, 10(8):423

1960 *Bothrops microphthalma microphthalma*; Peters, *Bull. Mus. Comp. Zoo. Harvard College*, 122(9):510

Type locality: Between Balsas Puerto and Moyabamba, Peru.

Range: Amazonian equatorial forests of Ecuador, Peru, known from Bolivia by a single specimen.

BOTHIROPS MICROPHTHALMUS COLOMBIANUS Rendahl & Vestergren

1940 *Bothrops microphthalmus colombianus* Rendahl et Vestergren, *Ark. Zool.*, 33A:15

Type locality: La Costa, Cauca, Colombia.

Range: Colombia.

BOTHIROPS MOOJENI sp. n. (Pl. IV)

Holotype: IBH 23 397, from Brasília, Distrito Federal, Brasil; col. by "Fundação Zoobotânica", April, 17, 1962.

Diagnosis: A *Bothrops* with divided subcaudals; the second upper labial not separated from the anterior border of loreal pit by small scales. Nearest to *Bothrops asper* Garman, but presenting: a nearly immaculate white belly; the light border of dorso-lateral blotches greyish instead of yellowish, and without the typical dark stippling as in *Bothrops asper*; a different shape of dorsal blotches (Pl. IV and Pl. VI). Ventrals (187-202) in females and (182-197) in males; subcaudals 51-66 in females and 57-70 in males.

Relationships: *Bothrops moojeni* is distinguishable from *Bothrops atrox* (Linnaeus) by nearly immaculate, instead of checkered belly; by the yellowish white upper labials, instead of heavily punctulated, with dark; by the less pointed snout (Pl. IV and Pl. V, fig. 2); by the very distinct, instead of obliterated dorsal markings in adults (Pl. IV); by the absence of heavily black blotched gular region in males (in males of *moojeni* there is only a light dark powdering of the gular region (Pl. V, fig. 2 and 1).

Distinguished from *B. asper* by the characters given under diagnosis. From *Bothrops pradoi* Hoge, by the same characters as compared with *Bothrops atrox*; and the smaller postocular dark streak (Pl. IV and VIII); by the different head and nuchal pattern (Pl. IV and VIII); by the different shape of body blotches (even in juveniles) (Pl. IV and VIII), and the much larger size of adults of *moojeni*. Differences also exist in venom composition (see text fig. 1).

Description of holotype: IBH 23 397, female, from Brasília, Distrito Federal, Brasil. Rostral much higher than wide; 7 upper labials, the second forming the anterior border of loreal pit (the left one semidivided); nasal divided, posterior smaller than anterior; 11 lower labials, first pair in contact behind symphyseal; anterior chinshields longer and wider than posterior ones; dorsals in 29 rows; ventrals: two enlarged plates not in contact with paraventral scale row, followed by 202 ventrals; anal entire; 54/55 subcaudals (tail inj.). Head 57,3 mm; body (+ head) 1293 mm; tail 175 mm (mut). Eighteen (left side) and nineteen (right side) black shaped dorsolateral markings opposite anteriorly, and alternated posteriorly. Four more or less distinct dark brown crossbands on the upper side of tail, followed by some indistinct ones. A large dark brown diamond-shaped mark, between the ^ shaped markings, on the dorsum, extending laterally to the second and sometimes to the first lateral dorsal scale row. Upper surface of head dark, a greyish light-colored streak from upper labials to neck, bordered above by the dark ground color and beneath by the postocular dark stripe; 9 to 10 scales between the supraoculars. Dorsal scales keeled, the keel extending to the end of scales. The keels are low, except anteriorly and posteriorly where they are very high. Belly white, with some clouded greyish dots. Upper labials not spotted or mottled with dark.



Variation: Ventrals 182-197 (190,1) in males and 187-210 (197,6) in females. Dorsals 25 (rarely 27 or 23) in males and 27 (rarely 25 or 29) in females. Subcaudals 57 to 70 in males and 51-66 in females. The juvenile males are showing the yellowish white tip of tail and a white gular region.

Paratypes: IBH 22 328, 25 259, 25 246, 25 247, 25 273, 25 260, 25 250, 25 228, 25 229, 25 275, 25 267, 25 284, 22 766, 22 322, 25 256, 25 240, 25 272, 25 268, 25 280, 25 276, 25 235, 25 270, 25 255, 25 266, 25 271, 25 258, 25 241, 25 237, 25 234, 25 232, 25 221, 25 286, 25 285, 25 226, 25 283, 25 224, 25 227, 25 225, 25 282, 25 261, 25 252, 25 242, 25 253, 23 257, 25 233, 25 249, 25 274, 25 278, 25 222, 25 223, 25 238, 25 279, 25 251, 25 239, 25 281, 25 262, 25 231, 25 243, 25 263, 25 265, 25 244, 25 254, 25 248, 25 230, 25 269, 25 277, 25 236, 25 245 and 25 264.

All specimens are from Brasília, Distrito Federal, Brasil.

BOTHIROPS NASUTUS Bocourt

HOG NOSED PIT VIPER

1868 *Bothrops nasutus* Bocourt, Ann. Sci. Nat. Paris (5), 10:202

1876 *Bothriopsis proboscideus* Cope, J. Ae. Philadelphia, (2)8:150, pl. 27, fig. 3

1896 *Lachesis brachystoma*; Boulenger, Cat. Sn. Brit. Mus., 3:547

Type locality: Panzos, Rio Polochie, Guatemala.

Range: Mexico (Vera Cruz), Southwards through Guatemala, Costa Rica, Panamá, Colombia and Ecuador.

BOTHIROPS NEUWIEDI NEUWIEDI Wagler

1824 *Bothrops newwiedi* Wagler, Spix, Serp. bras. sp. nov., :56, pl. 22, fig. 1

1896 *Lachesis newwiedi*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:542

1925 *Bothrops newwiedii newwiedii*; Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:57

Type locality: State Bahia, Brasil.

Range: Southern Bahia, Brasil.

BOTHIROPS NEUWIEDI BOLIVIANUS Amaral

1927 *Bothrops newwiedii boliviana* Amaral, Bull. Antiv. Inst. America, 1:6, fig. 2

Type locality: Buenavista, Provincia Sara, Dept. Santa Cruz de la Sierra, Bolivia.

Range: Known from Bolivia. Dept. Santa Cruz de la Sierra. Brasil: State Mato Grosso, extreme West.

BOTHIROPS NEUWIEDI MERIDIONALIS Müller

- 1885 *Bothrops atrox meridionalis* Müller, Verh. Nat. Ges. Basel, 7:699
- 1896 *Lachesis neuwiedii*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:542
- 1932 *Bothrops neuwiedii fluminensis* Amaral, Mem. Inst. Butantan, 7:97, pl. fig. 1
Type locality: Andaraí, State of Rio de Janeiro, Brasil.
Range: State of Rio de Janeiro, Guanabara and Espírito Santo.

BOTHIROPS NEUWIEDI DIPORUS Cope (Pl. VI)

- 1862 *Bothrops diporus* Cope, Proc. Acad. Nat. Sci. Philadelphia, 14:347
- 1896 *Lachesis neuwiedii*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:542
- 1930 *Bothrops neuwiedii meridionalis* Amaral, [also a homonym of *B. neuwiedii meridionalis* (Müller, 1885)] — *Type locality*: Embarcación Salta, Argentina.
- 1961 *Bothrops neuwiedii diporus* Cochran, Smiths. Inst. U.S. Nat. Mus. Bull., 220: 151
Type locality: Vermejo River region (boundary of Paraguay and Argentina).
Range: Northern Argentina, Southern Paraguay and State of Paraná (boundary region with Argentina) Brasil.

BOTHIROPS NEUWIEDI PARANAENSIS Amaral

- 1925 *Bothrops neuwiedii paranaensis* Amaral, Contr. Harvard Inst. Trop., Biol. Med., 2:61, pl. 14, fig. 7, 16:7
Type locality: Castro, Paraná, Brasil.
Range: State Paraná, Brasil.

BOTHIROPS NEUWIEDI LUTZI (Miranda-Ribeiro)

LUTZ'S PIT VIPER

- 1915 *Lachesis lutzi* Miranda-Ribeiro, Arch. Mus. Nac. Rio de Janeiro, 17:4, pl.
- 1925 *Bothrops neuwiedii bahiensis* Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:57, pl. 14, 1; 15, 1
- 1930 *Bothrops neuwiedii lutzi*; Amaral, Mem. Inst. Butantan, 4:238
Type locality: São Francisco River, Bahia, Brazil.
Range: Dry regions of Bahia, Brazil.

BOTHIROPS NEUWIEDI PAULOENSIS Amaral

- 1925 *Bothrops neuwiedii paulocensis* Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:59, pl. 14:5, 16:3

Type locality: Leme, São Paulo, Brasil.

Range: Southern parts of State São Paulo, Brasil.

BOTHIROPS NEUWIEDI PIAUHYENSIS Amaral

1916 *Bothrops neuwiedii piauhyense* Gomes, in Neiva et Penna [no diagnosis]

1925 *Bothrops neuwiedii piauhyensis* Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:58, pl. 14:2, 15:2

Type locality: Fazenda Grande, State Piauí, Brazil.

Range: States of Piauí, Pernambuco, Ceará and Southern Maranhão, Brasil.

BOTHIROPS NEUWIEDII PUBESCENS (Cope)

1869 *Trigonocephalus (Bothrops) pubescens* Cope, Amer. Phil. Soc. Philadelphia, 11:157

1896 *Lachesis neuwiedii*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:542

1925 *Bothrops neuwiedii riograndensis* Amaral, Contr. Harvard Inst. Trop. Biol. Med., 2:61

1959 *Bothrops neuwiedii pubescens*; Hoge, Mem. Inst. Butantan, 28:84

Type locality: Rio Grande do Sul, Brasil.

Range: State Rio Grande do Sul, Brasil.

BOTHIROPS NEUWIEDII URUTU Lacerda

1884 *Bothrops urutu* Lacerda, Leg. Ven. Serp. Brésil, :11, pl. 3

1896 *Lachesis neuwiedii*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:542

1937 *Bothrops neuwiedii urutu*; Amaral, Mem. Inst. Butantan, 10:160

Type locality: Province de Minas Gerais, now State Minas Gerais.

Range: Southern parts of Minas Gerais and Northern State São Paulo, Brasil.

BOTHIROPS NIGROVIRIDIS NIGROVIRIDIS (Peters)

1859 *Bothriechis nigroviridis* Peters, Mbr. Akad. Wiss. Berlin, :278, fig. 1

1878 *Bothrops (Bothriechis) nigroviridis*; F. Müller, Verh. Nat. Ges. Basel, 6:401

1896 *Lachesis nigroviridis nigroviridis*; Barbour et Loveridge, Bull. Antiven. Ins. America, 3:2

Type locality: Vulcan Barbo, Costa Rica.

Range: From Costa Rica to Panamá.

BOTHOPOUS NIGROVIRIDIS AURIFER (Salvin)1860 *Thamnoeuchis aurifer* Salvin, Proc. Zool. Soc. London, 1860:459, p. 32, fig. 11878 *Bothrops aurifer*; F. Müller, Verh. Nat. Ges. Basel, 6:4011896 *Laechesis aurifer*; Boulenger, Cat. Sn. Brit. Mus., 3:5681929 *Bothrops nigroviridis aurifera*; Barbour et Loveridge, Butl. Antiv. Inst. America, 3(1):1-3*Type locality*: Cobán, Alto Verapaz, Guatemala.*Range*: Moderate and intermediate elevations of the Caribbean Versant from Chiapas, Mexico through Guatemala.**BOTHOPOUS NUMMIFER NUMMIFER** (Rüppel)1845 *Atropos nummifer* Rüppel, Ver. Mus. Senckenberg, 3:3131863 *Bothrops nummifer*; Jan, Elenco Sist., :1261896 *Laechesis nummifer*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:5401950 *Bothrops nummifer veraeaeueis* Burger, Bull. Chicago Acad. Sci., 9(3):65*Type locality*: Restricted (Burger 1950, l.c.) to: Teapa, Tabasco; Mexico.*Range*: The dry tropical shrub vegetation on the Southeastern edge of Mexican plateau, from São Luiz do Potosí, Southwards to Oaxaca.**BOTHOPOUS NUMMIFER MEXICANUS** (Duméril, Bibron et Duméril)1854 *Atropis mexicanus* Duméril, Bibron et Duméril, Erpét. gen., 7(2):1521, pt. 83. bis, fig. 1-21880 *Bothrieuchis nummifer* var. *notata* Fischer, Archiv. Nat., 46:222, pl. 8, fig. 10-121882 *Bothrops mexicanus*; F. Müller, Verh. Nat. Ges. Basel, 7:1541896 *Laechesis nummifer*; Boulenger, [partim], Cat. Sn. Brit. Mus., 3:5441952 *Bothrops nummifer mexicanus*; Mertens, Abh. Senek. Naturf. Ges., 487:79*Type locality*: Cobán [Alta] Verapaz, Guatemala.*Range*: The Caribbean versant (low to intermediate elevations) from extreme Southern Mexico to Panamá.**BOTHOPOUS NUMMIFER OCCIDUUS** nom. nov. *1868 *Bothrops affinis* Bocourt, Ann. Sci. Nat., (5)10:201 [homonym of *Bothrops affinis* Gray 1849 = *Bothrops atrox* (Linnaeus, 1758)]* *Nomen novum pro Bothrops affinis* Bocourt, 1868.

1963 *Bothrops nummifer affinis*; Stuart, Miscel. Publ. Mus. Zool. Univ. Michigan, (122):130

Type locality: San Augustin, on the West (South) slope of the mountains, Guatemala; 610 m.

Type: Three syntypes MNHN Paris n.º 1194, 1195 and 1196.

Range: The deciduous moist monsoon forest on the low to moderate elevations along the Pacific slopes in El Salvador (possible in Eastern Chiapas, Mexico into El Salvador).

Rostral higher than wide, with a distinct dark spot; the postocular stripe fused or nearly fused with the first round lateral spot; the labial just below the eye, always with a dark spot; the lateral spots rounded, none or very few, fused with dorsal blotches.

BOTHIROPS OLIGOLEPIS (Werner)

1901 *Lachesis bilineatus* var. *oligolepis* Werner, Abh. u. Ber. Mus. Dresden, 9 (2):13

1912 *Lachesis chloromelas* Boulenger, [syn. fide Parker 1934] Mag. Nat. Hist., 10: (8):423

Type locality: Bolivia.

Range: Peru, Bolivia.

BOTHIROPS OPHRYOMEGAS Bocourt

1868 *Bothrops ophryomegas* Bocourt, Ann. Sei. Nat. Zool. Paleo., (5)10:201

1896 *Lachesis lansbergi*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:546

Type locality: Occidental slopes of Escuintla range, Guatemala.

Range: Pacific versant of Central America from Western Guatemala to Panamá.

BOTHIROPS PERUVIANUS (Boulenger)

1903 *Lachesis peruvianus* Boulenger, Ann. and Mag. Nat. Hist. (7), 12:354

1930 (1929) *Bothrops peruvianus*; Amaral, Mem. Inst. But., 4, 1929:240

Type locality: La Oroya, Carabaya, Southeastern Peru.

Range: Southeastern Peru.

BOTHIROPS PICADOI (Dunn)

1939 *Trimeresurus nummifer picadoi* Dunn, Proc. Biol. Soc. Washington, 52:165

1945 *Bothrops picadoi*; Smith et Taylor, Bull. U.S. Nat. Mus. Washington, 187:183

Type locality: La Palma, Costa Rica, 4500 ft.

Range: Central Plateau of Costa Rica and surrounding Mountains.

BOTHIROPS PICTUS (Tschudi)1845 *Lachesis picta* Tschudi, Faun. Per. Herp., :61, pl. 101863 *Bothrops pictus*; Jan, Elenco Sist. Ofid., :1261896 *Lachesis pictus*; Boulenger, Cat. Sn. Brit. Mus., 3:540*Type locality*: "The high mountains of Peru".*Range*: Coastal region of Peru.**BOTHIROPS PIRAJAI** Amaral

PIRAJÁ'S PIT VIPER — JARARACUÇU

1923 *Bothrops pirajai* Amaral, Proc. New England Zool. Club, 8:991923 *Bothrops neglecta* Amaral, [partim], New England Zool. Club, 8:109*Type locality*: Ilhéus, State Bahia, Brazil.*Range*: Known only from Southern Bahia.**BOTHIROPS PRADOI** (Hoge (Pl. VIII)1948 *Trimeresurus pradoi* Hoge, Mem. Inst. Butantan, 20(1947):193-2021955 *Bothrops atrox*; Amaral, Mem. Inst. Butantan, 26(1954):215-220*Type locality*: Pau Gigante, State Espírito Santo, Brasil.*Range*: Known from type locality Northwards to Southern Bahia.**BOTHIROPS PULCHER** (Peters)1863 *Trigonocephalus pulcher* Peters, Mbr. Akad. Wiss. Berlin, 1862:6721896 *Lachesis pulcher*; Boulenger, Cat. Sn. Brit. Mus., 3:5391930 *Bothrops pulchra*; Amaral, Mem. Inst. Butantan, 4:240*Type locality*: Quito, Ecuador.*Range*: Equatorial forests of Ecuador and Peru.**BOTHIROPS PUNCTATUS** (Garcia)1896 *Lachesis punctata* Garcia Los Ofid. ven. del Cauca, Cali, Colombia, :31, fig. 81910 *Lachesis monticelli* Peracca, An. Mus. Napoli, 3(12):1-31923 *Bothrops leptura* Amaral, Proc. New Engl. Zool. Club, 8:1021944 *Bothrops punctatus*; Dunn, Caldasia, 3(12):215*Type locality*: "Las montañas del Dagua", Colombia.*Range*: From Darien, Panamá, Colombia, to Choco, Ecuador.

BOTHROPS ROEDINGERI Mertens

ROEDING'S PIT VIPER

1942 *Bothrops roedingeri* Mertens, Beitr. Fauna, Perus, 11:284

Type locality: "Hacienda Huayri", Southern Peru.

Range: The desert region along the Pacific coast of Peru.

BOTHROPS SANCTAECRUCIS sp. nov. (Pl. IX)

Holotype: IBH 24 575 Oromomo, Rio Seeure, upper Beni, Bolivia.

Diagnosis: A *Bothrops* with non-prehensile tail; the second upper labial forming the anterior border of loreal pit; without postocular stripe; very large canthals; unblotched upper labials, immaculate belly; the dorsal blotches distinctly edged with white (yellow in life?); 8 upper labials.

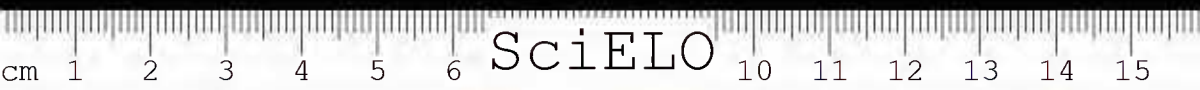
Relationships: Closest to *Bothrops jararacussu* Laeerta but distinct from it by: the absence of postocular stripe; different dorsal markings (Pl. IX and X); the immaculate belly, the lower keels on dorsal series; unblotched upper labials.

Description of holotype: IBH 24 575 a female; rostral higher than wide, visible from above, in contact with internasals, nasals and first upper labial; 8 upper labials, the second forming the anterior border of loreal pit; nasal divided, internasals large, in contact; nasal separated from anterior border of pit by two small scales; canthal very large, separated by two small scales; all scales of upper head keeled; supraoculars longer than wide, separated from each other by 6 scales; dorsals 25 keeled rows, except paraventral row; ventrals 182, preceded by 4 enlarged plates, not in contact with paraventral row; anal single; caudals 57-57; upper labials 8-8; lower labials 9-10; head 44,3 mm.

The upper labials are unspotted; the belly and gular region immaculate, except outer ends of ventrals; 19 triangular dorsal blotches meeting at middorsum; on tail the blotches form a zig-zag pattern. Head without markings.

Variations: All specimens are very uniform in characters, the smaller specimens have the white borders of triangular blotches more distinct, and the paraventral blotches (two just below the triangular markings) are well separated. The general dorsal pattern is not unlike the one observed in some *B. newwiedi* subspecies.

Paratypes: Bolivia: IBH 24 576. UMMZ 60 670, 60671, 60 672, 60 673, 60 674, 18 024 (2 specimens), 68 024, 68 033 (2 specimens), 68 022 (2 specimens), 68 030, 68 031, 60 676, 60 677, 60 678, 60 679, 60 680, 60 681, 68 023, 68 024, 68 026, 68 027, 68 028 and 68 029 from Buenavista, Ichilo, Dep. Santa



Cruz. UMMZ 63 278, 63 279, 63 280, 63 281, 63 282, 63 285, 63 286, 63 287, 63 288, 63 289, 63 290, 63 291 and 63 292 and CARN. M. 2890; 2885 from Rio Snrutu, 450 m, Ichilo, Dep. Santa Cruz.

BOTHIROPS SCHLEGELLI (Berthold)

SCHLEGEL'S PIT VIPER

1846 *Trionocephalus schlegelli* Berthold, Nachr. Univ. Ges. Wiss. Göttingen, :147

1863 *B. [othrops] schlegeli*; Jan, Elene. Sist. Ofid., :127

1896 *Lachesis schlegelii*; Boulenger, Cat. Sn. Brit. Mus., 3:567

Type locality: Popayan, restricted to Popayan, Colombia (Dunn et Stuart, 1954).

Range: From Southern Mexico to Ecuador and Venezuela.

BOTHIROPS SPHENOPHRYS Smith

1960 *Bothrops sphenophrys* Smith, Trans. Kansas Acad. Sci., 62:267, fig. 1-2

Type locality: La Soledad, Oaxaca, Mexico.

Range: Known from South Oaxaca, Mexico.

BOTHIROPS SUPRACILIARIS Taylor

1954 *Bothrops schlegelii supraciliaris* Taylor, Kansas Univ. Sci. Bull., 36(2)(11): 791, fig. 39

1963 [*Bothrops supraciliaris*]; Stuart, Miscel. Publ. Mus. Zool. Univ. Michigan (122):131

Type locality: Mountains near San Isidro del General, San José Province, Costa Rica.

Range: Known only from type specimens and a specimen without locality (banana shipping) in MCZ.

BOTHIROPS UNDULATUS (Jan)

1859 *Trionocephalus (Atropos) undulatus* Jan, Rev. Mag. Zool., :157

1895 *Bothrops undulatus*; Günther, Biol. Centr. Americana, Rept. Amph. :187

1896 *Lachesis undulatus*; Boulenger, Cat. Sn. Brit. Mus., 3:565

Type locality: Mexico.

Range: High elevations central Veracruz, Southward through Central Oaxaca. and Northwards in Central Guerrero in the Sierra Madre del Sur (known

from Omilteme and Chilpanungo Guerrero; Oaxaca, Oaxaca; Adopan and Orizaba; Vera Cruz.

BOTHOPS VENEZUELENSIS Sandner Montilla

1952 *Bothrops venezuelensis*, sp n., Sandner Montilla, Mon. Cien. Inst. Terap. exp. Lab. "Veros" Ltda., (21):4

1961 *Bothrops pifanoi* Sandner Montilla et Römer, Nov. cien. Contr. ocas. Mus. Hist. Nat. La Salle, 29:3, fig. 1-4

1961 *Bothrops venezuelac*, sp. n., Sandner Montilla, Mon. cien. centr. ocas. Mus. Hist. Nat. La Salle, Caracas. Zool., (30):3

Type locality: "Boca de Tigre", Serrania de El Avila, Distrito Federal al Norte de Caracas.

Range: Northern and Central part of Venezuela, Avila Mountain, the Western mountains of los Tigres, the forests of Rancho Grande and Fila Miranda, from State Aragua and finally the forests of Gualapo.

BOTHOPS XANTOGRAMMUS (Cope)

1868 *Trigonocephalus xantogrammus* Cope, Proc. Acad. Nat. Sci. Philadelphia, 10:110

1896 *Lachesis xantogramma*; Boulenger, Cat. Sn. Brit. Mus., 3:543

1930 *Bothrops xantogramma*; Amaral, Mem. Inst. Butantan, 4:241

Type locality: Pallatanga, Ecuador.

Range: Apparently to be found in the Highlands of Ecuador and Colombia.

BOTHOPS YUCATANNICUS (Smith)

YUCATAN PIT VIPER

1941 *Trimercsurus yucatanicus* Smith, Zoologica, 26:62

1944 *Bothrops yucatanicus*; Smith, Carn. Mus., 30:92

Type locality: Chichzen Itza, Yucatan, Mexico.

Range: Northern and Northeastern Yucatan Peninsula, Mexico. Known only by a few specimens from several localities of Yucatan.

CROTALUS Linnaeus

CROTALUS [*CROTALUS*] *Linnaeus* *

CROTALUS ATROX Baird & Girard

WESTERN DIAMOND RATTLESNAKE

1853 *Crotalus atrox* Baird & Girard, Cat. North. Amer. Rep., (1):5

* Subgenera are not repeated except for subgenus *Sistrurus*.

- 1861 *Caudisona atrox* var. *atrox*; Kennicott, Proc. Acad. Nat. Sci. Philad., 13:206
- 1861 *Caudisona atrox sonoraensis* Kennicott, Proc. Acad. Nat. Sci. Philad., 13:206
- 1896 *Crotalus confluentus*, Boulenger, [partim] Cat. Sn. Brit. Mus., 3:576
- 1956 *Crotalus atrox*, Klauber, Rattlesnakes, 1:29, fig. 2:12

Type locality: Indianola [Calhoun County], Texas, USA.

Range: U.S.A. from Arkansas and Oklahoma, South to Mexico, Sonora, Chihuahua, Durango, Coahuila, Nuevo Leon, Tamaulipas, San Luís de Potosí and Northern Veracruz, isolated colonies in Central Veracruz and Southern Oaxaca probably present in Northern Zacatecas and possibly Hidalgo. Also Tiburón, Turner and San Pedro Martir Islands.

CROTALUS BASILISCUS BASILICUS² (Cope)

MEXICAN WEST-COAST RATTLESNAKE

- 1864 *Caudisona basilisca* Cope, Proc. Acad. Nat. Sci. Philadelp., 16(3):166
- 1875 *Crotalus basiliscus* Cope, in Yarrow, Surv. W. of 100 Merid. (Wheeler), 5 (4):532
- 1896 *Crotalus terrificus*, Boulenger, [partim] Cat. Sn. Brit. Mus., 3:573
- 1948 *Crotalus basiliscus basiliscus*; Gloyd, Nat. Hist. Misc., n. 17:1
- 1956 *Crotalus basiliscus basiliscus*; Klauber, Rattlesnakes, 1:30

Type locality: Near Colima, Mexico; restricted [Smith & Taylor 1950] to Colima, Mexico.

Range: Mexico, from extreme Southern Sonora along West coast of Mexico through Sinaloa, Jalisco, Colima and Western Michoacán, and Nayarit.

CROTALUS BASILISCUS OAXACUS Gloyd

OAXACAN RATTLESNAKE

- 1948 *Crotalus basiliscus oaxacus* Gloyd, Nat. Hist. Misc., (17):1
- 1956 *Crotalus basiliscus oaxacus*; Klauber, Rattlesnakes, 1:30

Type locality: Oaxaca, Oaxaca, Mexico.

Range: Known from type locality and Chilpancingo Region.

CROTALUS CATALINENSIS Cliff

SANTA CATALINA ISLAND RATTLESNAKE

- 1954 *Crotalus catalinensis* Cliff, Trans. San Diego Soc. Nat. Hist., 12(5):80
- 1956 *Crotalus catalinensis*; Klauber, Rattlesnakes, 1:30

Type locality: Santa Catalina Island, Gulf of California, Mexico.

Range: Known only from type locality.

CROTALUS CERASTES CERCOBOMBUS Savage & Cliff

SONORAN DESERT SIDERWINDER

1953 *Crotalus cerastes cercobombus* Savage & Cliff, Nat. Hist. Miscel., (119):2

1956 *Crotalus cerastes cercobombus*; Klauber, Rattlesnakes, 1:31

Type locality: Near Gila Band, Maricopa County, Arizona, U.S.A.

Range: U.S.A.: Arizona, Maricopa, Mexico, Northwestern Sonora (except parts of the state North and West of Bahía Adair), Tiburon Island.

CROTALUS CERASTES LATEROREPENS Klauber

COLORADO DESERT SIDEWINDER

1944 *Crotalus cerastes laterorepens* Klauber, [partim], Trans. San Diego Soc. Nat. Hist., 10(8):94

1956 *Crotalus cerastes laterorepens*; Klauber, Rattlesnakes, 1:31

Type locality: The Narrows, San Diego County, California, U.S.A.

Range: U.S.A., the desert areas of Central and Eastern Riverside, Northeastern San Diego and Imperial County in California, Western Yuma County, Arizona; Northeastern Baja California and Mexico; Sonora.

CROTALUS DURISSUS DURISSUS Linnaeus

CENTRAL AMERICAN RATTLESNAKE

1758 *Crotalus durissus* Linnaeus, Syst. Nat., 10th ed., 1:214

1802 *Crotalus sinus* Latreille in Sonnini et Latreille, Hist. Nat. Rept., 3:202, 4:323

1896 *Crotalus terrificus*, Boulenger, [partim], Cat. Sn. Brit. Mus., 3:573

1936 *Crotalus durissus durissus*; Klauber [partim] Oce. Pap. San Diego Soc. Nat. Hist. (1):4

1956 *Crotalus durissus durissus*; Klauber, Rattlesnakes, 1:31-32

Type locality: America. Restricted (Taylor et Smith, 1950) to Jalapa, Veracruz, Mexico.

This restriction is not very well justified in our opinion, since the snake described by Linnaeus as *durissus* is more than probably from Surinam (also suggested by the name of the collection "Claudius Grill Surinam Collection").

But since the type of *durissus* no longer exists, and to avoid nomenclatural changes we maintain *durissus* "sensu" Klauber for the Mexican subspecies. The



Map V — Distribution of *Crotalus durissus*. Isolated dots represents occurrence of *Crotalus durissus* in isolated savannah's.

Southamerican rattler, now definitively stated as *terrificus*, is to be subdivided. For this reason, *terrificus* must be restricted to the extreme Southern subspecies.

The name *dryinus* is here use for the coastal subspecies from the Guyanas. There is no doubt that *dryinus* Linnaeus is a specimen from the Guyanas and besides *durissus* is the oldest name for the coastal form of the Guyanas. The selection by Klauber of *terrificus* instead of *dryinus* was done only to avoid useless nomenclature changes and now that the Southamerican rattler is to be subdivided, the use of *dryinus* fits more with the stability of nomenclature than the description of another new subspecies.

Range: Mexico, Central Veracruz, Southeastern Oaxaca, Tabasco and Chiapas, Central and Southern Guatemala, Western and Southern Honduras, El Salvador, Southwestern Nicaragua. Northwestern and Central Costa Rica.

Klauber suspects that this species may occur in Southern British Honduras. For distribution of the species *Crotalus durissus* see map V.

CROTALUS DURISSUS CASCABELLA (Wagler, 1824) (Pl. XII)

1824 *Crotalus cascavella* Wagler, in Spix, Serp. Bras. sp. nov.; 60, pl. 24

Type specimeu: None designated. *Neotype*: By present designation IBH 23 400, Mina Caraiba. Bahia. This locality is near Spix itinerary.

1925 *Crotalus terrificus* var. *collirhoubeatus* Amaral, Rev. Mus. Paulista, 15:90, pl. 1

Type locality: Northeastern Brasil; here restricted to Mina Caraiba. Bahia, Brasil.

Range: The dry "caatinga" regions of States Maranhão, Ceará, Piauí, Pernambuco, Alagoas, Rio Grande do Norte and Bahia (map VI and VII).

CROTALUS DURISSUS COLLILINEATUS Amaral (Pl. XIII)

1926 *Crotalus terrificus* var. *collilineatus* Amaral, [partim] Rev. Mus. Paulista, 15:90

1956 *Crotalus durissus terrificus*; Klauber, [partim], Rattlesnakes, 1:33

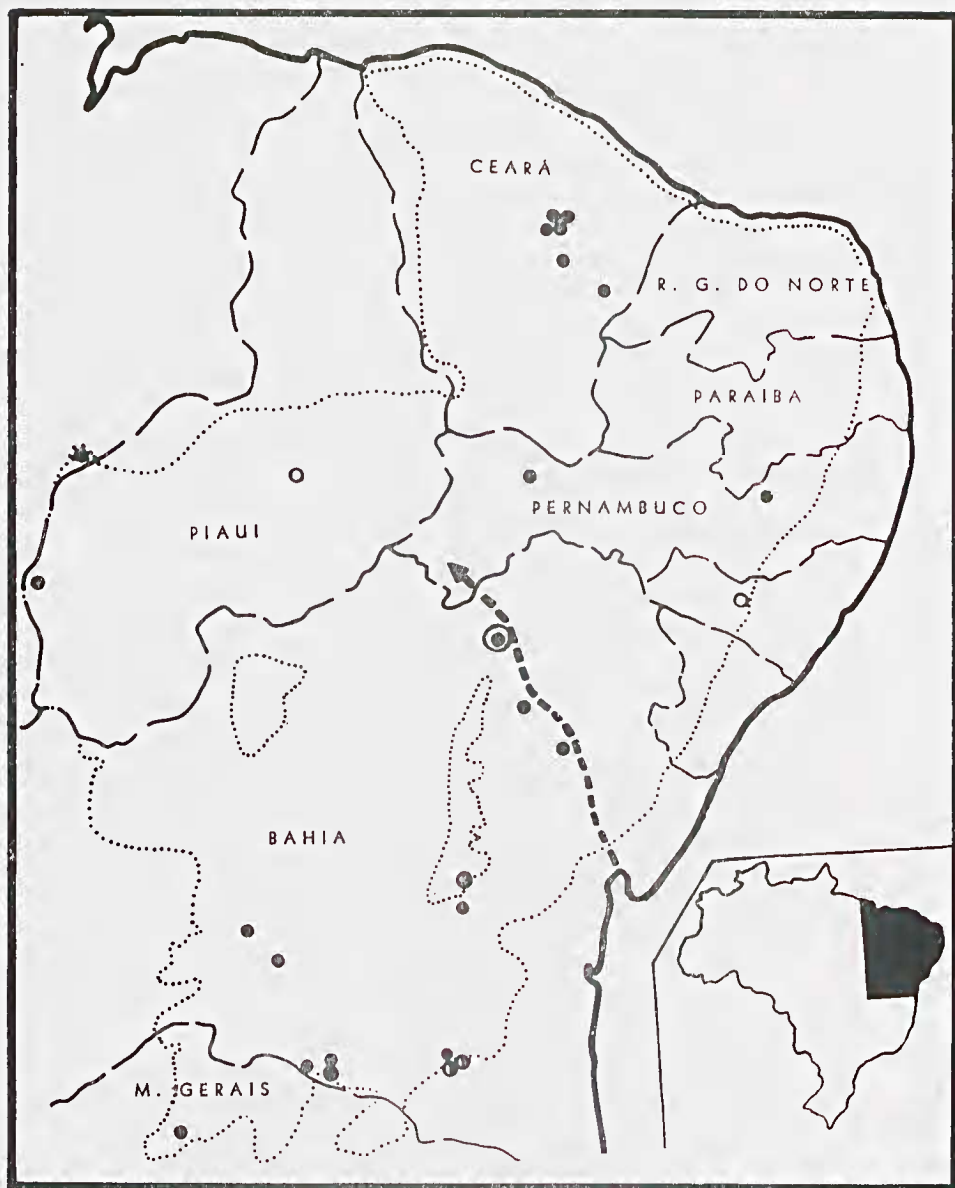
Type locality: Central, Southeastern and Southern Brazil, Argentina. Paraguay and probably Uruguay and Bolivia. By present restriction — State Mato Grosso, Brazil.

Type specimen: None designed.

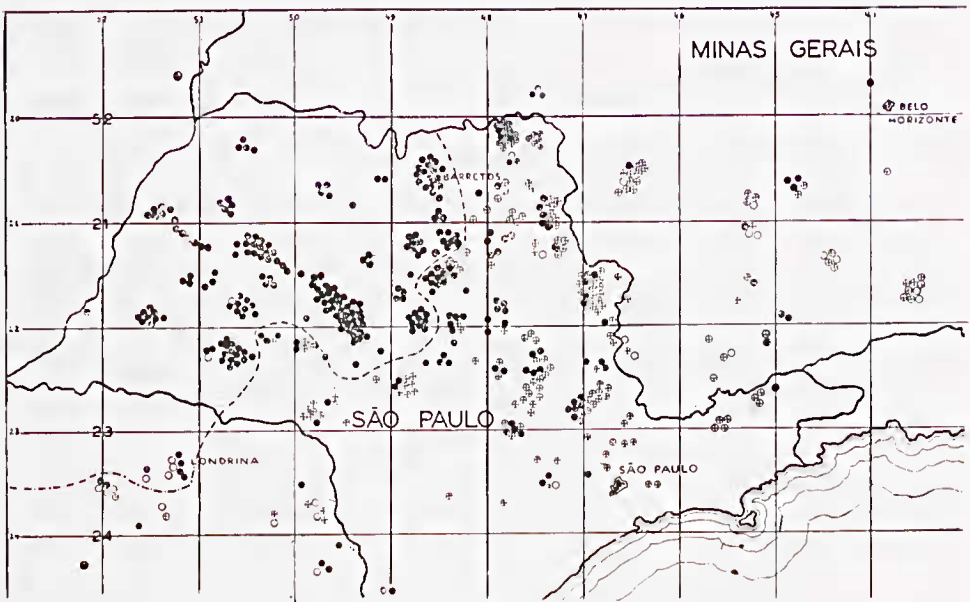
Since Amaral's concept of *collilineatus* includes at least two subspecies, a type specimen must be selected in accordance to international rules of nomenclature between the three ones figured in Amaral's description.

By present selection, in agreement with Dr. A. do Amaral, we select IBH n.º 2180 from State Mato Grosso as lectotype of *Crotalus durissus collilineatus* Amaral.

Crotalus durissus collilineatus (as restricted here) is most closely related to *cascavella* and *terrificus*.

Map VI — Distribution of *Crotalus durissus cascavella*.

- — Specimens examined.
- — Idem, by State only.
- ⊙ — Type locality.
- ◐ — Integrades with *terrificus*.
- — Itinerary of Spix & Martius.



Map. VII — Geographical distribution of *Crotales*, with:

- — *Crotales*.
- ⊙ — Without *Crotales*.

(after Sehnberg, Mem. Inst. But., 29:261)

From *terrificus terrificus* it can be distinguished by short distinct paraventral nuchal stripe; the presence of a distinct supplementary paraventral dot the very distinct head markings; more contrasted dorsal diamonds and by the presence of crotoamin in the venom of *colliliucatus*; from *Crotalus durissus cascavella* by the long paranuchal stripes; the strongly contrasted black and white pattern instead of less distinct and yellowish gray pattern of *cascavella* and by the white venom instead of yellow as in *cascavella*.

Range: South Western State Mato Grosso, States of Goiás, Federal District; Minas Gerais and Northeastern São Paulo. Intergradation over a large area in State São Paulo. The intergradation line (map VII) follow the same pattern of the limit of presence or absence of crotoamin given by Schenberg. Of course there is no intergradation in Schenberg map since he considered only + or - data on crotoamin. (Map VIII).

CROTALUS DURISSUS CULMINATUS Klauber

NORTHWESTERN NEOTROPICAL RATTLESNAKE

1952 *Crotalus durissus culminatus* Klauber, Bull. Zool. Soc. San Diego, (26):65

Type locality: Hacienda El Sabino, near Uruapan, Michoacan, Mexico.

Range: Southwestern Michoacan, Southern and Western Morilos Guerrero and Southwestern Oaxaca, Mexico. Possibly Western Puebla and Distrito Federal.

CROTALUS DURISSUS CUMANENSIS Humboldt

1833 *Crotalus cumanensis* Humboldt in Humboldt et Bonpland, Recueil d'Obs. Zool. Anat. Comp., 2:6

1833 *Crotalus loeflingi* Humboldt in Humboldt et Bonpland, Recueil d'Obs. Zool. Anat. Comp., 2:6

1896 *Crotalus terrificus*; Boulenger, [partim], Cat. Sn. Brit. Mus., 3:573

1956 *Crotalus durissus terrificus*; Klauber (but admit that *cumanensis* should be recognized when more material will be available); Rattlesnakes, 1:32

Type locality: Cumaná, Venezuela.

Range: Venezuela, except: the high mountains of the Andes; the savannahs of Monagas northwards to El Temblador and Eastwards to El Tigre, where *Crotalus vegraudis* occurs; the isolated savannahs of Southern State Bolivar and State Amazonas where *Crotalus durissus ruruima* occurs (several specimens of State Amazonas here tentatively quoted as *ruruima* although slightly different).

Specimens of Colombian Atlantic coast are more closely related to *Crotalus durissus durissus* than to any other subspecies. Specimens from low altitudes on the northern Atlantic slopes, between Catia del Mar and Los Caracás are very closely related to *Crotalus durissus dryinus* and represents possibly an isolated population of *dryinus*.

CROTALUS DURISSUS DRYINUS Linnaeus (Pl. XIV)

1758 *Crotalus dryinus* Linnaeus, Syst. Nat., 10th. ed., 1:214

1896 *Crotalus terrificus*; Boulenger, Cat. Sn. Brit. Mus., 3:573

1956 *Crotalus dryinus*; Klauber, (as senior, but rejected synonym for the South American Rattler).

Type locality: America, by present restriction, Paramaribo, Surinam.

Range: The Guianas.

This subspecies is closely related to *Crotalus durissus durissus* and *Crotalus durissus uarajoensis* subsp. nov. described below. Distinct from *durissus durissus* by the presence of a one scale wide black paraventral stripe on the neck; the slightly lower number of ventrals and the absence of black paraventral dots on the neck.

CROTALUS DURISSUS MARAJOENSIS subsp. nov. (Pl. XV)

MARAJOAN RATTLESNAKE

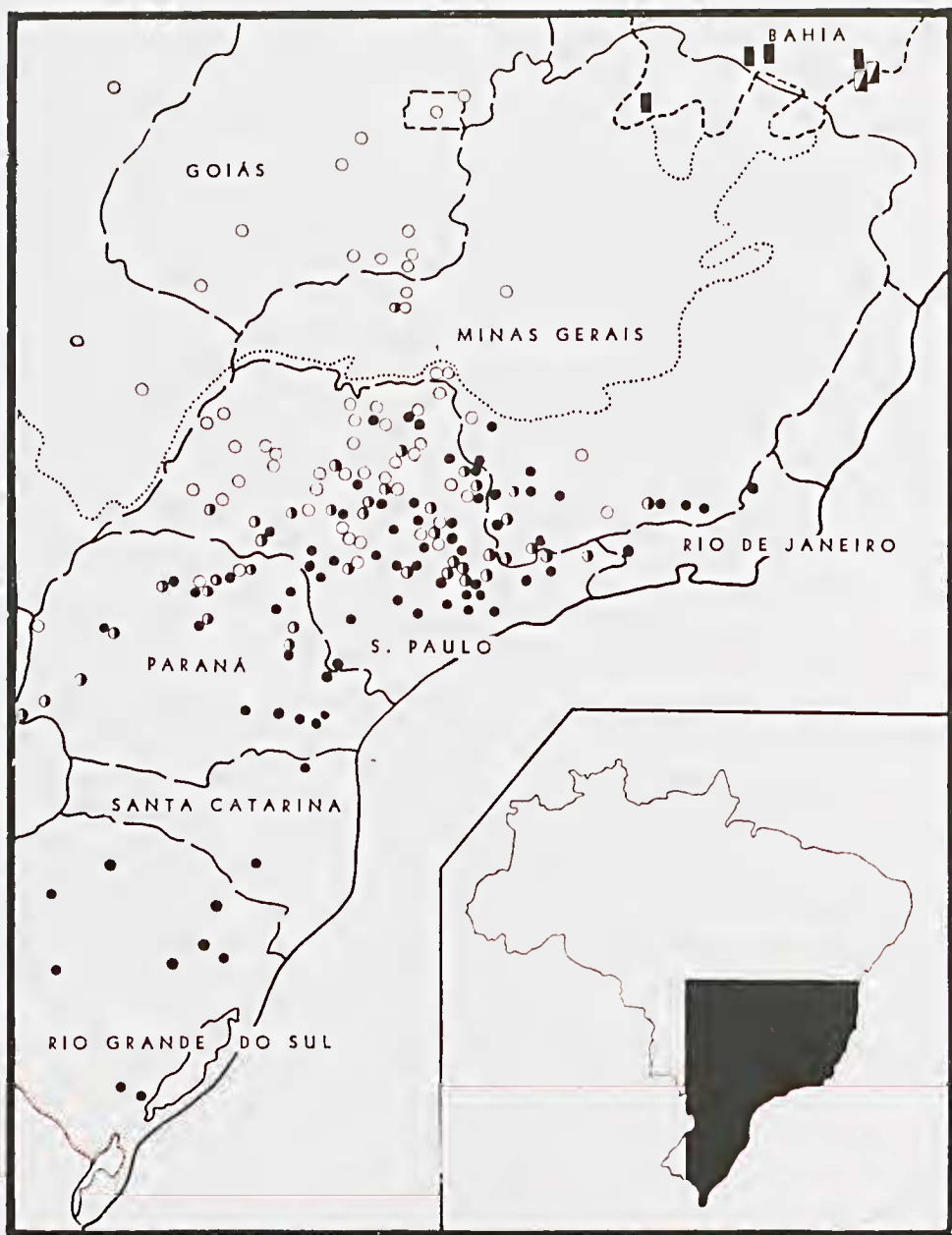
Holotype: IBH 17 779, from Tuiuiu, Ilha de Marajó, State Pará, Brasil.

Diagnosis: A *Crotalus durissus* subspecies with 159-168 ventrals in males and 165-171 in females; 25-30 subcaudals in males and 20-22 in females; a very distinct, although less distinct than in *durissus* and *dryinus*, pattern: the paravertebral neck stripes well evedentiated and margined below by a series of scales slightly lighter than the next below. No paraventral one scale wide stripe, but scattered black scales, head pattern very distinct, even in adults; dorsal diamonds with the center slightly darker than ground color; margined by a series of light colored scales, although less contrasting than in *terrificus* or *ruruima* subspecies.

Relationships: *Crotalus durissus uarajoensis* nearest to *Crotalus durissus dryinus* but distinct from it by the presence of scattered black scales on the sides of the neck instead of a black stripe, and by less contrasted dorsal markings.

Description of the type specimen: IBH 17 779; dorsals 32-27-19; ventrals 168; anal 1; subcaudal 21; 13-13 upper labials; 16-11 lower labials; first pair of lower labials not in contact; 25 dorsal blotches very distinct down to posterior fifth, when they became indistinct. Head of light grey ground color with very distinct head marking. The paravertebral stripes extending to the head up to the black cross-bar on the supraoculars. Belly white, clouded with dark, gradually darker posteriorly; tail black.

Paratypes: IBH, Females, from Severino, Ilha de Marajó, State Pará, Brasil, col. by A. R. Hoge — 17 725, 17 617, 17 628, 15 401, 17 912, 17 907, 17 904, 17 911, 17 905, 17 908, 17 910, 17 920, 17 914, 17 915, 17 921, 17 918, 17 927 and 17 921. Males — 17 724, 17 616, 17 586, 17 721, 17 761, 17 726, 17 903, 17 916, 17 906, 17 901, 17 917, 17 900, 17 924, 17 902, 17 929, 17 913, 17 919, 17 923, 17 922, 17 928, 17 926, 19 407, 17 909, 17 930 and 17 929, from same locality and col. as females. IBH 17 770, 17 738, 17 778, 14 937, 15 370, 18 652 from Tuiuiu, Ilha de Marajó, same col.



Map VIII — Intergradation:

- — *Crotalus durissus collilineatus*.
- — *Crotallus durissus terrificus*.
- — *Crotalus durissus cascavella*.
- ◩ — *Crotalus durissus cascavella* × *Crotalus durissus terrificus*.
- ◐ — *Crotalus durissus collilincatus* × *Crotalus durissus terrificus*.
- — Southern limits of savannah's ("campos").
- - - - - — Southern limits of "caatinga".

CROTALUS DURISSUS RURUIMA * subsp. nov. (Pl. XVI)

Holotype: AMNH, 36 056 from Paulo Camp, Mt. Roraima, 4000 ft., Venezuela.

Paratypes: AMNH, n.º 36 055, 38 115, 36 019, 36 051 from Paulo Camp; AMNH, n.º 36 057, Mt. Roraima, between Paulo and Philipp Camp, Venezuela. UUMMZ 85 269, Mt. Roraima slopes, Pablo side 7200 ft., Venezuela and UMMZ 85 267, 7 mi West of Cuquenam, Venezuela.

All specimens are from the Brazilian-Venezuelan border line and not from the British Guiana border line; collected during the Tate expedition at Mt. Roraima 1927.

Diagnosis: A dwarfed *Crotalus durissus* subsp. with a 167-170 ventrals in males and 174-177 in females; 25-29 subcaudals in males and 21-23 in females; the paravertebral stripes distinctly bordered with white scales and lighter center, the same pattern of light center and outer white borders on the head markings. The dorsal diamonds less contrasted than in *durissus durissus* and distinctly bordered with white, approaching in this way the pattern of the extreme Southern specimens of *terrificus*. Some specimens show a tendency to the obliterated *vegraudis* pattern.

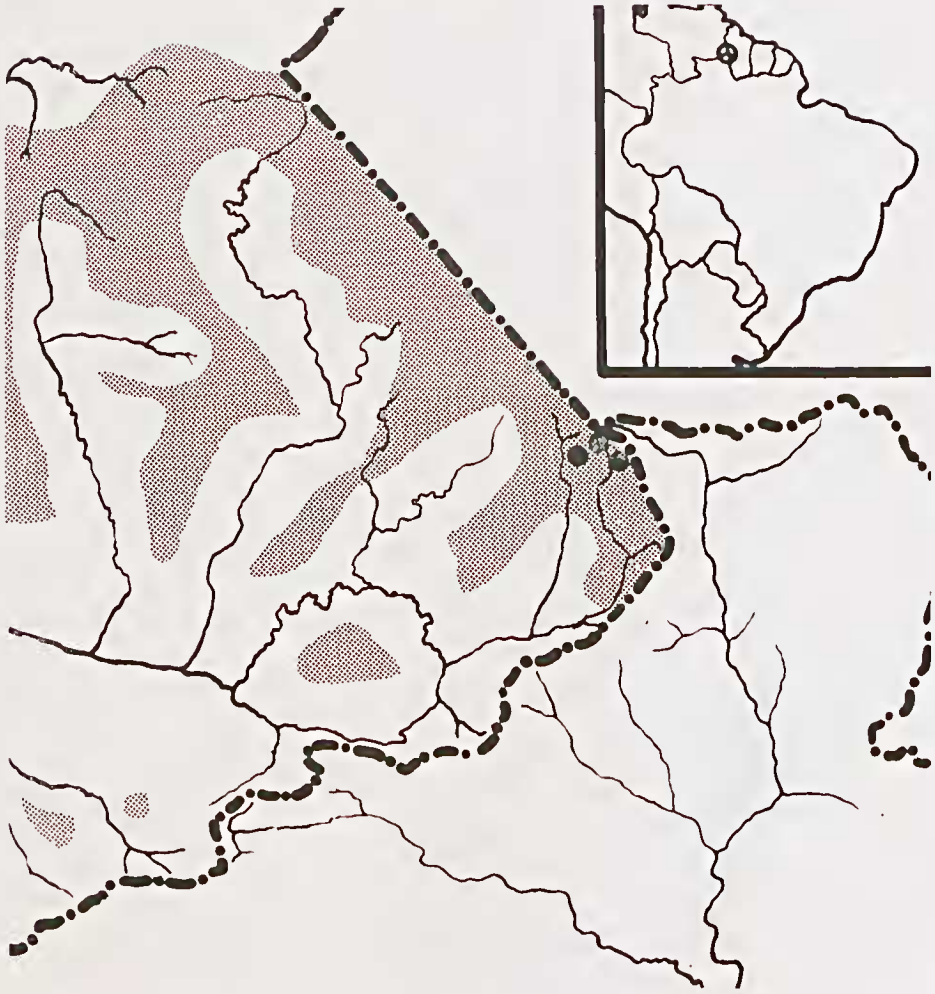
Description of type: AMNH n.º 36 056 with 174 ventrals; 22 caudals; 13/13 upper labials; 16/17 lower labials; 27-29/20 dorsals. Two enlarged internasals and two enlarged prefrontals; 5 rows of small scales between supraoculars; rostral higher than wide with a dark center. The head marking consist of two $\rightarrow\leftarrow$ shaped stripes, confluent with paravertebral stripes. The centers of head markings and paravertebral stripes are distinctly lighter than the one-scale wide black borders which are margined externally by a series of white scales. The dorsal diamonds, although having a light center and dark borders, approach more the *terrificus* pattern because of the evident white scales bordering them. A white stripe on the posterior border of prefrontals; twenty two diamonds on the body. The white borders of diamonds cross the lower borders of the same and delimit lateraly the paraventral dots, forming an X shaped white pattern on the body, although a slight obliterated by scattered white scales, not unlike those observed in *vegraudis*. The dorsal and upper head patterns are showed in Pl. XVI.

Relationships: *Crotalus durissus ruruima* is closest related to *Crotalus durissus terrificus* because of the general pattern consisting of paravertebral stripes and dorsal diamonds bordered by a distinctly white, scale row and to *Crotalus durissus vegraudis* because the tendency of scattered (white scales all over the body), but easily distinguished from both subspecies by the peculiar head marking, and smaller size.

Type locality: Paulo Camp, 4000 ft., at Venezuelan versant of Mount Roraima, Venezuela.

* Ruruima: Indian name of Mount Roraima, meaning father of waters.



Map IX — Known distribution of *Crotalus durissus ruruima*.● — *Crotalus durissus ruruima*.■ — Savannah's where *Crotalus durissus ruruima* probably occurs.

Range: Known only from the localities mentioned above but extending probably all over the isolated savannah of Southern Venezuela (Map IX).

CROTALUS DURISSUS TERRIFICUS (Laurenti) (Pl. XVII)

1768 *Caudisona terrifica* Laurenti, Syn. Rept., :93

1896 *Crotalus terrificus*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:573

1926 *Crotalus terrificus colliliueatus* Amaral, [partim], Rev. Mus. Paulista, 15:90

1936 *Crotalus durissus terrificus*; Klauber, [partim], Rattlesnakes, 1:32

The reasons for maintaining *terrificus* as subspecific name for the South American Rattler have been discussed by Klauber (Bull. Zool. Soc. San Diego, (17): 31-95, 1941). Considering that *terrificus* does not fit any subspecies in particular, and that the South American rattler must be divided into several subspecies, it becomes necessary for stability of zoological nomenclature to fix the name *terrificus* for one of the South American subspecies. This fixation will then permit to use again the name of *dryinus* without nomenclatural problems.

We retain the name of *terrificus* for the extreme Southern population for following reasons:

1) This population fits best *Crotalus durissus terrificus* (Laurenti) "sensu" Klauber 1956.

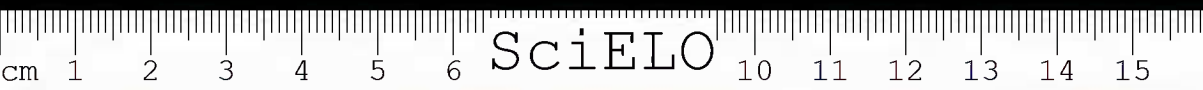
2) Most of medical and biochemical research on South American Rattlers was done with venom from the South, and always *terrificus* was associated with this research, used either as specific or subspecific name.

Considering that no type of *terrificus* exist; that the original description is insufficient to characterize a given subspecies and that for stability of zoological nomenclature a neotype is needed, we designated her the specimen IBH 22 997, as neotype of *Crotalus durissus terrificus* (Laurenti, 1768).

Diagnosis: A subspecies of *Crotalus durissus* characterized by: very long but indistinct paravertebral stripes on the neck, bordered below by a series of white scales in strong color contrast from the next below; an indistinct head pattern in adult specimens; the dorsal diamonds nearly of the same color as ground color, not with distinctly darker borders; the diamonds bordered by a series of white scales in strong color contrast with ground color and diamonds, the paravertebral blotches also bordered with white scales in strong color contrast with blotches and ground color. The series of white scales bordering blotches and diamonds generally confluent forming an X shaped white pattern. No distinct short paraventral streak on the neck.

Description of neotype: IBH 22 997 a female from Julio de Castilho, Município Taquari, State Rio Grande do Sul, Brasil.

Ventrals: 3 enlarged scales not in contact with paraventral row + 172 true ventrals, anal entire, subcaudals 1/1 + 19 (the 7th semidivided) + 3/3; 6 articles



on rattler; upper labials 14; lower labials 16; dorsal in 37-29-19 rows; head 45.7 mm body 990 mm, tail 67 mm.

Rostral higher than wide with white borders supraoculars separated by 4-5 scales. Head markings absent, except a white stripe formed by part of scales, from nasal to 11th upper labial; neck marks indistinct; a paraventral white stripe, one scale wide, on the 4th dorsal row; a series of white spots forming a white lateral stripe. Dorsal blotches 21 (gradually less distinct tailwards) followed by ? indistinct ones. The center of dorsal blotches of same grey-brown ground color, distinctly margined by white scales; paraventral blotches indistinct but margined, at least posteriorly, by a series of white scales in strong color contrast.

Belly white anteriorly and posteriorly gradually mottled with indistinct clouds of dark, on posterior part of belly there remains only a small central stripe.

CROTALUS DURISSUS TONACUS Gloyd et Kauffeld

TONACAN RATTLESNAKE

1940 *Crotalus tonacus* Gloyd et Kauffeld, Bull. Chicago Acad. Sci., 6(2):12

1945 *Crotalus durissus tonacus*; Smith and Taylor, U.S. Mus. Bull., 187:190

Type locality: Panaco Island, about 75 miles South of Tampico, Veracruz, Mexico, 12 miles inland from Cabo Rojo.

Range: Southern Tamaulipas, Southeastern San Luis Potosí, and Northern Veracruz.

CROTALUS DURISSUS TZABCAN Klauber

YUCATAN NEOTROPICAL RATTLESNAKE

1952 *Crotalus durissus tzabcan* Klauber, Bull. Zool. Soc. San Diego, (26):71

Type locality: Kantunil, Yucatan, Mexico.

Range: From Yucatan South into Northern El Petén, Guatemala and British Honduras.

CROTALUS DURISSUS UNICOLOR Van Lidth de Geude

ARUBA ISLAND RATTLESNAKE

1887 *Crotalus horridus* var. *unicolor* Van Lidth de Geude, Notes Leyden Mus. 2 (8):133

1896 *Crotalus terrificus*; Boulenger, [partim], Cat. Sn. Brit. Mus., 3:573

1940 *Crotalus durissus unicolor*; Brongersma, Studies of Fauna of Curaçao, Aruba, Bonaire and Venezuelan Islands

1956 *Crotalus unicolor*; Klauber, Rattlesnakes, 1:44



Type locality: Aruba Island, Netherlands West Indies.

Range: Known from Aruba Island only. A specimen, described as *Crotalus pulvis* by Ditmars from Monagas, Nicaragua is probably based on a specimen with erroneous locality.

CROTALUS VEGRANDIS Klauber

URACOAN RATTLESNAKE

1941 *Crotalus vegrandis* Klauber, Trans. San Diego Soc. Nat. Hist., 9(30):331

1956 *Crotalus durissus vegrandis*; Klauber, Rattlesnakes, 1:34

Type locality: Maturin Savannah, near Uracoa, Sotillo District, State Monagas, Venezuela.

Range: Known from several localities, all from State Monagas, and Anzoategui.

CROTALUS ENYO ENYO (Cope)

LOWER CALIFORNIA RATTLESNAKE

1861 *Caudisona enyo* Cope, Proc. Acad. Sci. Philad., 13:208

1875 *Crotalus enyo*; Cope, Bull. U.S. Mus., 1:33

1954 *Crotalus enyo enyo*; Lowe & Norris, Trans. San Diego Soc. Nat. Hist., 12(4):25

1956 *Crotalus enyo enyo*; Klauber, Rattlesnakes, 1:34

Type locality: Lower California.

Range: Mexico, Baja California, from the vicinity of el Marmol (lat. 30°N), South to Cape San Lucas and the Islands Magdalena, Santa Margarida, Espiritu Santo, Partida, San Francisco and Carmen.

CROTALUS ENYO CERRALVENSIS Cliff

CERRALVO ISLAND SNAKE

1854 *Crotalus enyo cerralvensis* Cliff, Trans. San Diego Soc. Nat. Hist., 12(5):82

1956 *Crotalus enyo cerralvensis*; Klauber, Rattlesnakes, 1:34

Type locality: Mexico, Cerralvo Island Gulf of California.

Range: Cerralvo Island.

CROTALUS ENYO FURVUS Lowe & Norris

ROSARIO RATTLESNAKES

1954 *Crotalus enyo furvus* Lowe & Norris, Trans. San Diego Soc. Nat. Hist., 12(4):52

1956 *Crotalus enyo furvus*; Klauber, Rattlesnakes, 1:34

Type locality: 10.9 ml. North of El Rosario, Baja California del Norte, Mexico.

Range: Mexico, Baja California del Norte, on West coast from San Telmo River to El Rosario.

CROTALUS EXSUL Garman

CEDROS ISLAND DIAMOND RATTLESNAKE

1883 *Crotalus exsul* Garman, Mem. Mus. Comp. Zool., 8(3):114

1956 *Crotalus exsul*; Klauber, Rattlesnakes, 1:34

Type locality: Cedros Island (or Cerros), Pacific Coast of Baja California, Mexico.

Range: Mexico, Cedros (or Cerros) Island, Pacific Coast of Baja California.

CROTALUS INTERMEDIUS INTERMEDIUS Troschel

TOTALCAN SMALL-HEADED RATTLESNAKE

1865 *Crotalus intermedius*, Troschel, in Müller, Reisen in die Vereinigten Staaten, Canada und Mexico, 3:613

1896 *Crotalus triseriatus*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:581

1940 *Crotalus triseriatus anahuacus*, Gloyd, [partim], Chicago Head Sci. Soec. Publ., (4):91

1941 *Crotalus triseriatus gloydi* Taylor, Univ. Kansas Sci. Bull., 27(1):130

1946 *Crotalus gloydi gloydi*; Smith, Univ. Kansas Sci. Bull., 31(1):73

1952 *Crotalus intermedius intermedius*; Klauber, Bull. Zool. Soc. San Diego, (26):9

1956 *Crotalus intermedius intermedius*; Klauber, Rattlesnakes, 1:36

Type locality: Mexico.

Range: Imperfectly known from Michoacan, Northeastern Puebla, West Central Vera Cruz, and Central Oaxaca.

CROTALUS INTERMEDIUS OMILTEMANUS Günther

OMILTEMAN SMALL-HEADED RATTLESNAKE

1895 *Crotalus omiltemanus* Günther, Biol. Centr. Amer. Rept. Batr., :192

1896 *Crotalus triseriatus*; Boulenger, [partim], Cat. Sn. Brit. Mus., 3:381

1938 *Crotalus triseriatus omiltemanus*; Klauber, Copeia, (4):196



1952 *Crotalus intermedius omiltemanus*; Klauber, Bull. Zool. Soc. San Diego, (26):14

1956 *Crotalus intermedius omiltemanus*; Klauber, Rattlesnakes, 1:36

Type locality: Omilteme Guerero, Mexico.

Range: Mexico, Central Guerero.

CROTALUS LEPIDUS LEPIDUS (Kennicott)

MOTTLED RATTLESNAKE

1861 *Caudisona lepida* Kennicott, Proc. Acad. Nat. Sci. Philad., 13:206

1883 *Crotalus lepidus*; Cope, [partim], Proc. Acad. Sci. Philad., 35:13

1887 *Crotalus (tigris) palmeri* Garman, Bull. Essex Inst., 19:124

1936 *Crotalus lepidus lepidus*; Gloyd, Occ. Papers Mus. Zool. Univ. Mich., (337):2

1956 *Crotalus lepidus lepidus*; Klauber, Rattlesnakes, 1:37

Type locality: Presidio del Norte and Eagle Pass, Texas. Restricted [Smith & Taylor 1950]: Presidio del Norte, Presidio County, Texas, U.S.A.

Range: U.S.A. Southern New Mexico, Southeastern Texas. Mexico, Northeastern Mexico, Coahuila Nuevo León, Western San Luís Potosí and Southeastern Zacatecas (integration with *Klauberi*).

CROTALUS LEPIDUS KLAUBERI Gloyd

BANDED ROCK RATTLESNAKE

1936 *Crotalus lepidus klauberi* Gloyd, Occ. Papers Mus. Zool. Univ. Mich., (337):2

1944 *Crotalus semicornutus* Taylor, Univ. Kansas Sci., Bull., 30:(1):52

1956 *Crotalus lepidus klauberi*; Klauber, Rattlesnakes, 1:37

Type locality: Carr Canyon, Huachuca Mountains. Cochise County Arizona, U.S.A.

Range: U.S.A. Southeastern Arizona, Southwestern New Mexico. The El Pazo area in Texas and North Central Mexico, including the Santa Rita Huachuca. Dragoon Dez Cabezas and Chiricahua Mountains of Southeastern Arizona. Mexico (mountains) Northeastern Sonora, Southeastern Sinaloa, Chihuahua, Durango Nayarit (in this area although in territory of *Crotalus lepidus klauberi* are different and may justify the recognition of another subspecies [fide Klauber] 1956).

CROTALUS LEPIDUS MORULUS Klauber

TAUMALIPAN ROCK RATTLESNAKE

1952 *Crotalus lepidus morulus* Klauber, Bull. Zool. Soc. San Diego, (26):52



1956 *Crotalus lepidus morulus*; Klauber, Rattlesnakes, 1:37

Type locality: 10 miles Northwest of Gómez Farias on the trail to la Voya de Salas, Tamaulipas, Mexico.

Range: Mexico, Mountains Northwest of Gómez Farias, and near Chinas, Tamaulipas, Mexico.

CROTALUS MITCHELLII MITCHELLII (Cope)

SAN LUCAN SPECKLED RATTLESNAKE

1861 *Caudisona mitchellii* Cope, Proc. Acad. Nat. Sci. Phil., 13:293

1875 *Crotalus mitchellii*; Cope, in Yarrow, Surv. W of 100th Merid. (Wheeler), 5(4):535

1895 *Crotalus mitchellii mitchellii*; Stejneger, [partim] Stejneger, Rept. U.S. Nat 1893:454

1936 *Crotalus mitchellii mitchellii*; Klauber, [partim], Rept. U.S. Nat. Mus., 8(19):154

1956 *Crotalus mitchellii mitchellii*; Klauber, Rattlesnakes, 1:38

Type locality: Cape San Lucas, Baja California, Mexico.

Range: Mexico, District del Sur of Baja California. Islands of Cerralvo, Espiritu Santo, San José, Santa Cruz, Carmen (Gulf coast and Margarita Pacific coast).

CROTALUS MITCHELLII ANGELICUS

1964 *Crotalus mitchellii angelicus* Klauber, Trans. San Diego Soc. Nat. Hist., 13 (5):75-80

Type locality: Isla Angel de la Guardia, Mexico.

Range: Mexico, Isla Angel de la Guardia.

CROTALUS MITCHELLII MUERTENSIS Klauber

EL MUERTO ISLAND SPECKLED RATTLESNAKE

1949 *Crotalus mitchellii muertensis* Klauber, Trans. San Diego Soc. Nat. Hist., 11(6):97

1957 *Crotalus mitchellii muertensis*; Klauber, Bull. Zool. Serv. San Diego, (26):123

Type locality: El Muerto Island, San Luís Group, Gulf of California coast of Baja California, Mexico.

Range: Known only from type locality.



CROTALUS MITCHELLII PYRRHIUS Cope

SOUTHWESTERN SPECKLED RATTLESNAKE

- 1866 *Caudisona pyrrha* Cope, Proc. Acad. Nat. Sci. Phil., 18:308
- 1875 *Crotalus pyrrhus*; Cope, in Yarrow, Surv. W. of 100th Mer. (Wheeler), 5:
(5):535
- 1895 *Crotalus mitchellii pyrrhus*; Stejneger, [partim] Rept. U.S. Nat. Mus., 1893:
456
- 1922 *Crotalus godmani*; Schmidt, Bull. Amer. Mus. Nat. Hist., 46(11)701
- 1936 *Crotalus mitchellii pyrrhus*; Klauber, Trans. San Diego Soc. Nat. Hist., 8
(19):157
- 1956 *Crotalus mitchellii pyrrhus*; Klauber, Rattlesnakes, 1:38

Type locality: "Not stated" [stated by Klauber 1956] as "Canyon Prieto, Yavapai County, Arizona", U.S.A.

Range: U.S.A. Southern California Southern Nevada, Western Arizona
Northwestern Sonora Mexico, Northern Baja California.

CROTALUS MOLOSSUS MOLOSSUS Baird & Girard

NORTHERN BLACK-TAILED RATTLESNAKE

- 1853 *Crotalus molossus*, Baird & Girard, Cat. Sn. Amer. Rept., (1):10
- 1854 *Crotalus ornatus* Hallowell, Proc. Acad. Nat. Sci. Phil., 7:192
- 1936 *Crotalus molossus molossus*; Gloyd, Occ. Papers Mus. Zool. Univ. Mich.,
(325):2
- 1956 *Crotalus molossus molossus*; Klauber, Rattlesnakes, 1:39

Type locality: Fort Webster, Santa Rita del Cobre, Grand County, New Mexico, U.S.A.

Range: U.S.A. from Central Texas to Western Arizona, Mexico, Northern Mexico.

CROTALUS MOLOSSUS ESTEBANENSIS Klauber

SAN ESTEBAN ISLAND RATTLESNAKE

- 1949 *Crotalus molossus estebanensis* Klauber, Trans. San Diego Soc. Nat. Hist.,
11(6):104

Type locality: San Esteban Island, Gulf of California, Mexico.

Range: Mexico, only on San Esteban Island, Gulf of California.

CROTALUS MOLOSSUS NIGRESCENS Gloyd

MEXICAN BLACK-TAILED RATTLESNAKE

- 1887 *Crotalus molossus*, Garman, Bull. Essex Inst., 19:123
- 1936 *Crotalus molossus nigrescens* Gloyd, Oec. Papers Mus. Zool. Univ. Mich., (325):2
- 1956 *Crotalus molossus nigrescens*; Klauber, Rattlesnakes, 1:39-40
Type locality: 4 miles West of La Colorada, Zacatecas, Mexico.
Range: Mexico, Tableland from Southern Sonora Southwestern Chihuahua and Southern Coahuila to Oaxaca and Veraeruz. Probably also in Eastern Jalisco, Aguas Calientes and Morelos.

CROTALUS POLYSTICTUS Cope

MEXICAN LANCE HEADED RATTLESNAKE

- 1865 *Caudisoua polysticta* Cope, Proc. Acad. Nat. Hist. Philad., 17:191
- 1875 *Crotalus polystictus*; Cope, in Yarrow, Surv. W. of 100th Mer. (Wheeler), 5:(4):533
- 1877 *Crotalus jimenezii* Dugés, La Naturaleza, 4:23
- 1896 *Crotalus polystictus*; Boulenger, Cat. Sn. Brit. Mus., 3:582
- 1956 *Crotalus polystictus*; Klauber, Rattlesnakes, 1:40
Type locality: Restricted [Taylor & Smith 1950] Tupátaro, Guanajuato, Mexico.
Range: Mexico, Tableland of Central Mexico from Southern Zacatecas to Central Veracruz including Eastern Jalisco, Guanajuato, Michoacan, Distrito Federal Morelos and East Central Veraeruz. Probably also in State Aguas Calientes, Gueretaro, Hidalgo, Mexico, Tlaxcala, Puebla and Oaxaca.

CROTALUS PRICEI PRICEI Van Denburgh

ARIZONA TWIN-SPOTTED RATTLESNAKE

- 1895 *Crotalus pricei* Van Denburgh. Proc. Calif. Acad. Sci., (2), 5:856
- 1931 *Crotalus triseriatus pricei*; Klauber, in Githens and George, Bull. Ant. Inst. Amer., 5:(2):33
- 1946 *Crotalus pricei pricei*; Smith, Univ. Kansas Sci. Bull., 31(1):79
- 1956 *Crotalus pricei pricei*; Klauber, Rattlesnakes, 1:40
Type locality: Huachuca Mountain, Cochise Country, Arizona, U.S.A.



Range: U.S.A. Southeastern Mountain of Arizona. Mexico Northwestern Mountains. Including the Pinaleno, Santa Rita, Huachuca and Chiricahua Mountains in Arizona and the Sierra Tarahumare and Sierra Madre in Eastern Sonora, Western Chihuahua and Durango. Probably also in the mountains of Eastern Sinaloa and Northern Nayarit.

CROTALUS PRICEI MIQUIHUANUS Gloyd

MIQUIHUANAN TWIN-SPOTTED RATTLESNAKE

- 1936 *Crotalus triseriatus triseriatus*, Klauber, [partim] Trans. San Diego Sci. Nat. Hist., 8(20):208
- 1940 *Crotalus triseriatus miquihuanus* Gloyd, Chicago Acad. Sci. Spe. Publ., (4): 102
- 1946 *Crotalus pricei miquihuanus*; Smith. Univ. Kansas Sci. Bull., 31(1):79
- 1956 *Crotalus pricei miquihuanus*; Klauber, Rattlesnakes, 1:41

Type locality: Cerro Potosí, near Galeana, Nuevo León, Mexico.

Range: Mexico, Southeastern Nuevo León, Southwestern Tamaulipas, and extreme Southeastern Coahuila.

CROTALUS PUSILLUS Klauber

TANCITARON DUSKY RATTLESNAKE

- 1952 *Crotalus pusillus* Klauber, Bull. Zool. Soc. San Diego, Soc. Nat. Hist., 3 (20):247
- 1956 *Crotalus pusillus*; Klauber, Rattlesnakes, 1:41

Type locality: Tancitaro, Michoacan, alt. 5.000 ft., Mexico.

Range: Mexico, mountains of Western Michoacan and Southern Jalisco.

CROTALUS RUBER RUBER Cope

RED DIAMOND RATTLESNAKE

- 1892 *Crotalus adamanteus ruber* Cope, Proc. U.S. Mus., 14:690
- 1922 *Crotalus atrox elegans* Schmidt, Bull. Amer. Mus. Nat. Hist., 46(11):699
- 1949 *Crotalus ruber ruber*; Klauber, Trans. San Diego Soc. Nat. Hist., 11(5):59
- 1956 *Crotalus ruber ruber*; Klauber, Rattlesnakes, 1:41

Type locality: Not designated. Restricted [Smith and Taylor 1959] to Dulzura, San Diego County, California, U.S.A.

Range: U.S.A. Southwest California to Mexico, Northern Baja California.

CROTALUS RUBER LUCASENSIS Van Denburgh

SAN LUCAN DIAMOND RATTLESNAKE

- 1920 *Crotalus lucasensis* Van Denburgh, Proc. Biol. Soc. Washington, 32:214
- 1949 *Crotalus ruber lucasensis*; Klauber, Trans. San Diego Soc. Nat. Hist., 11 (5):59
- 1956 *Crotalus ruber lucasensis*; Klauber, Rattlesnakes, 1:42

Type locality: Aguas Calientes.

Range: Cape region of Baja California Peninsula from Loreto to Cape San Lucas, and the Islands of Santa Margarita and San José.

CROTALUS SCUTULATUS SCUTULATUS (Kennicott)

MOJAVE RATTLESNAKE

- 1861 *Caudisona scutulata* Kennicott, Proc. Acad. Nat. Sci. Phil., 13:207
- 1875 *Crotalus scutulatus*; Cope, in Yarrow, Surv. W. of 100th Mer. (Wheeler), 5(4):533
- 1896 *Crotalus scutulatus*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:575
- 1929 *Crotalus confluentus kellyi* Amara, Bull. Antiv. Inst. Amer., 2(4):91
- 1940 *Crotalus scutulatus scutulatus*; Gloyd, Chicago Acad. Sci. Spe. Publ., (4):200
- 1956 *Crotalus scutulatus scutulatus*; Klauber, Rattlesnakes, 1:42

Type locality: Designated [Smith and Taylor 1950] Wickenburg, Maricopa County, Arizona, U.S.A.

Range: U.S.A. Mexico. From the Mojave Desert, California Southeast to South Central Mexico.

CROTALUS SCUTULATUS SALVINI Günther

HUAMANTLAN RATTLESNAKE

- 1895 *Crotalus salvini* Günther, Biol. Centr. Amer. Rept. Batr., :193
- 1896 *Crotalus scutulatus*; Boulenger, Cat. Sn. Brit. Mus., 3:575
- 1940 *Crotalus scutulatus salvini*; Gloyd, Chicago Acad. Sci. Spe. Publ., (4):201
- 1956 *Crotalus scutulatus salvini*; Klauber, Rattlesnakes, 1:42

Type locality: Huamantla [Tlaxcala], Mexico. alt. 8000 ft.

Range: Mexico, Tlaxcala, Puebla, Querétaro and West central Veracruz. Probably present in Hidalgo.

CROTALUS STEJNEGERI Dunn

LONG TAILED RATTLESNAKE

1919 *Crotalus stejnegeri* Dunn, Proc. Biol. Soc. Washington, 32:214

1956 *Crotalus stejnegeri*; Klauber, Rattlesnakes, 1:43

Type locality: Plumosos = Plomosas, Sinaloa, Mexico.

Range: Mexico. The mountains of Southwest Sinaloa and Western Durango.

CROTALUS TIGRIS Kennicott

TIGER RATTLESNAKE

1859 *Crotalus tigris* Kennicott, in Baird, Rept. of Boundery U.S. Max. Boundery Surv., 2:14

1896 *Crotalus tigris*; Boulenger, Cat. Sn. Brit. Mus., 3:580

1956 *Crotalus tigris*; Klauber, Rattlesnakes, 1:43

Type locality: Sierra Verde, and Pozo Verde [on the Sonoran side of the U.S. near Sarabe, Sonora] Mexico.

Range: U.S.A. the rocky desert foothills of South-Central Arizona and Mexico, Northern Sonora.

CROTALUS TORTUGENSIS Van Denburgh & Slevin

TORTUGA ISLAND DIAMOND RATTLESNAKE

1921 *Crotalus tortugensis* Van Denburgh and Slevin, Proc. Calif. Acad. Sci., (4), 11:398

1933 *Crotalus atrox tortugensis*; Stejneger & Barbour, Check. List North Amer. Amp. Rept., ed. 3:133

1956 *Crotalus tortugensis*; Klauber, Rattlesnakes, 1:43

Type locality: Tortuga Island, Gulf of California, Mexico.

Range: Only known from Tortuga Island, Mexico.

CROTALUS TRANSVERSUS Taylor

CROSS-BANDED MOUNTAIN RATTLESNAKE

1914 *Crotalus transversus* Taylor, Univ. Kansas Sci. Bull., 30(1):47

1956 *Crotalus transversus*, Klauber, Rattlesnakes, 1:43

Type locality: Near Tres Marias (Tres Cumbre) about 55 km. Southwest of Mexico, D.F., Mexico.

Range: Mexico, Mexico, Distrito Federal and Northwestern Morelos.

CROTALUS TRISERIATUS TRISERIATUS (Wagler)

CENTRAL PLATEAU DUSKY RATTLESNAKE

- 1830 *Uropsophus triseriatus* Wagler, Nat. Syst. Amph., :176
- 1831 *Crotalus triseriatus*, Gray, Syn. Spec. Clas. Rept. in Griffith (1) Animal Kingdom by Cuvier, vol. 9:78
- 1859 *Crotalus lugubris* Jan, Rev. Mag. Zool. (2), 10:153, 1956
- 1895 *Crotalus pallidus* Günther, [partim] Biol. Centr. Amer. Rept. Bat., :193
- 1896 *Crotalus triseriatus*; Boulenger, Cat. Sn. Brit. Mus., 3:581
- 1931 *Crotalus triseriatus triseriatus*; Klauber, [partim], in Githens and George, Bull. Antiv. Inst. America, 5(2):33
- 1940 *Crotalus triseriatus anahuacus* Gloyd, Chicago, Acad. Sci., Sp. publ., (4):91
- 1952 *Crotalus triseriatus triseriatus*; Klauber, Bull. Zool. Soc. San Diego, 26:19
- 1956 *Crotalus triseriatus triseriatus*; Klauber, Rattlesnakes, 1:44

Type locality: Restricted [Smith & Taylor 1950] Alvarez, San Luis Potosí, Mexico.

Range: Mexico, Nayarit, West-Central Veracruz, Jalisco, Michoacan, Mexico, Distrito Federal, Morelos, Puebla and West Central Veracruz. Probably in Tlaxcala.

CROTALUS TRISERIATUS AQUILUS Klauber

QUERETARAN DUSKY-RATTLESNAKE

- 1952 *Crotalus triseriatus aquilus* Klauber, Bull. Zool. Soc. San Diego, (26):24
- 1956 *Crotalus triseriatus aquilus*; Klauber, Rattlesnakes, 1:44

Type locality: Near Alvarez, San Luis Potosí, Mexico.

Range: Mexico, Southern San Luis Potosí, Guanajuato, Northeast Michoacan, Querétaro and Hidalgo. Probably in Northwestern Veracruz.

CROTALUS VIRIDIS VIRIDIS (Rafinesque)

PRAIRIE RATTLESNAKE

- 1818 *Crotalinus viridis* Rafinesque, Amer. Mounth. Mag. & Crit. Rev., 4(1):41

- 1823 *Crotalus confluentus* Say, in Long's Exped. from Pittsburgh to Rocky Mountains
- 1852 *Crotalus lecontei* Hallowell, Proc. Acad. Nat. Sci. Philad., 6:180
- 1883 *Crotalus confluentus* var. *pulverulentus* Cope, Proc. Acad. Nat. Sci., Philad., 35:11
- 1897 *Crotalus confluentus*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:576
- 1936 *Crotalus viridis viridis*; Klauber, Trans. San Diego Soc. Nat. Hist., 8(2):191
- 1956 *Crotalus viridis viridis*; Klauber, Rattlesnakes, 1:45

Type locality: Restricted [Smith and Taylor 1950], Cross, Boyd County, Nebraska, U.S.A.

Range: U.S.A. the Great Plains from 96 W to the Rocky Mountains and from Southern Canada to Mexico, extreme Northern Sonora, Northern Chihuahua and Northern Coahuila.

CROTALUS VIRIDIS CALIGINIS Klauber

CORONADO ISLAND RATTLESNAKE

- 1896 *Crotalus confluentus*, Boulenger, [partim], Cat. Sn. Brit. Mus., 3:576
- 1949 *Crotalus viridis caliginis* Klauber, Trans. San Diego Soc. Nat. Hist., 11(6):90
- 1956 *Crotalus viridis caliginis*; Klauber, Rattlesnakes, 1:45-46

Type locality: South Coronado Island, Northwest coast of Baja California, Mexico.

Range: Known from type locality.

CROTALUS VIRIDIS HELLERI Meek

SOUTHERN PACIFIC RATTLESNAKE

- 1905 *Crotalus helleri* Meek, Field. Cat. Mus. Zool. Sci., 7(1):7
- 1949 *Crotalus viridis helleri*; Klauber, Trans. San Diego Soc. Nat. Hist., 11(6):77
- 1956 *Crotalus viridis helleri*; Klauber, Rattlesnakes, 1:46-47

Type locality: San José, Baja California, Mexico.

Range: U.S.A. Southwest California, Mexico.

CROTALUS WILLARDI WILLARDI Meek

ARIZONA RIDGE-NOSED RATTLESNAKE

- 1905 *Crotalus willardi* Meek, Field Columbian Misc. publ., 104 Zool. Ser., 7(1):18



1956 *Crotalus willardi willardi*; Klauber, Klauber, Rattlesnakes, 1:48

Type locality: [corrected Swarth 1921] above Hamburg. Middle branch of Ramsay Canyon. Huachuca Mountains, alt. above 7,000 ft. Cochise County, Arizona, U.S.A.

Range: U.S.A. The Huachuca and Santa Rita Mountains, Southern Arizona. Mexico. Sierra de Ojos and Sierra Azul, Northern Sonora.

CROTALUS WILLARDI AMABILIS Anderson

1962 *Crotalus willardi amabilis* Anderson, Copeia, (1):160-163

Type locality: Arroyo Mesteño, 8,500 feet Sierra del Mido, Chihuahua, Mexico.

Range: Known only from the Sierra del Mido proper but may also occur in the high county of the Sierra Santa Clara and Cerro Campanas which are included in the Sierra del Mido complex.

CROTALUS WILLARDI MERIDIONALIS Klauber

SOUTHERN RIDGE-NOSED RATTLESNAKE

1949 *Crotalus willardi meridionalis* Klauber, Trans. San Diego Soc. Nat. Hist., 11(8):131

1956 *Crotalus willardi meridionalis*; Klauber, Rattlesnakes, 1:49

Type locality: Coyotes, Durango, Mexico.

Range: Mexico, Southern Durango and Southwestern Zacatecas.

CROTALUS WILLARDI SILUS Klauber

CHIHUAHUA RIDGE-NOSED RATTLESNAKE

1949 *Crotalus willardi silus* Klauber, Trans. San Diego Soc. Nat. Hist., 11(8):128

1956 *Crotalus willardi silus*; Klauber, Rattlesnakes, 1:49

Type locality: On the Rio Gavilán, 7 miles Southwest of Pacheco, Chihuahua, Mexico, alt. 6,200 ft.

Range: Mexico, Northeastern Sonora and Western Chihuahua.

CROTALUS (SISTRURUS) Garman

CROTALUS [SISTRURUS] CATENATUS EDWARDSI Baird & Girard

EDWARD'S MASSASAUGA

1853 *Crotalophorus edwardsii* Baird & Girard Cat. N. Am. Rept., (1):15



1896 *Crotalus catenatus*; Boulenger, [partim] Cat. Sn. Brit. Mus., 3:571

1955 *Sistrurus catenatus edwardsii*; Gloyd, Bull. Chicago Acad. Sci., 10(6):83

Type locality: Tamaulipas, Mexico.

Range: U.S. extreme Southern and Trans-Pecos Texas, Colorado, New Mexico and Arizona. Mexico. Extreme Northern Tamaulipas.

CROTALUS [SISTRURUS] RAVUS (Cope)

MEXICAN PIGMY RATTLESNAKE

1865 *Crotalus ravus* Cope, Proc. Acad. Nat. Sci. Phil., 17(4):191

1896 *Sistrurus ravus*; Boulenger, Cat. Sn. Brit. Mus., 3:571

1956 *Sistrurus ravus*; Klauber, Rattlesnakes, 1:51

Type locality: Tableland of Mexico, restricted [Smith and Taylor] Totaleo, Vera Cruz, Mexico.

Range: Mexico, Eastern and South-Central. State Mexico, Distrito Federal, Morelos, Tlaxcala, Puebla, West-Central Vera Cruz and East-Central Oaxaca.

LACHESIS Daudin

LACHESIS MUTA MUTA (Linnaeus) (Pl. XIX)

BUSHMASTER. SURUCUCU (Brasil)

1766 *Crotalus mutus* Linnaeus, Syst. Nat. 12th ed. :373

1803 *Lachesis mutus*; Daudin, Hist. Nat. Rept., 5:351

1896 *Lachesis muta*; Boulenger, Cat. Sn. Brit. Mus., 3:534

1951 *Lachesis muta muta*; Taylor (as cons. of the use of *stenophrys* Cope as a subspecies of *muta*); Univ. Sci. Bull., 34(1):184

Type locality: By present restriction — Surinam.

Range: The Equatorial forests of Brasil, Guianas, Venezuela, Trinidad, Bolivia, Peru, Ecuador and Colombia.

LACHESIS MUTA STENOPIHRYS Cope

1876 (1875) *Lachesis stenophrys* Cope, J. Acad. Nat. Sci. Philad., (2) 8:152

1951 *Lachesis muta stenophrys*; Taylor, Univ. Kansas Sci. Bull., 34(1):184

Type locality: Sipurio, Costa Rica.

Range: The forests of Costa Rica and Panamá (the intergradation zone with *muta*, either in Southern Panamá or Northern Colombia is not known).

An isolated population of *Lachesis muta* in the forests along the coast of Brasil (see map) can be recognized as:

LACHESIS MUTA NOCTIVAGA subsp. n. (Pl. XX)

Type: IBH n.º 17 957, female, from Vitória, Espírito Santo, Brasil, collected by Carlos Braz Cola at Nov. 20, 1957.

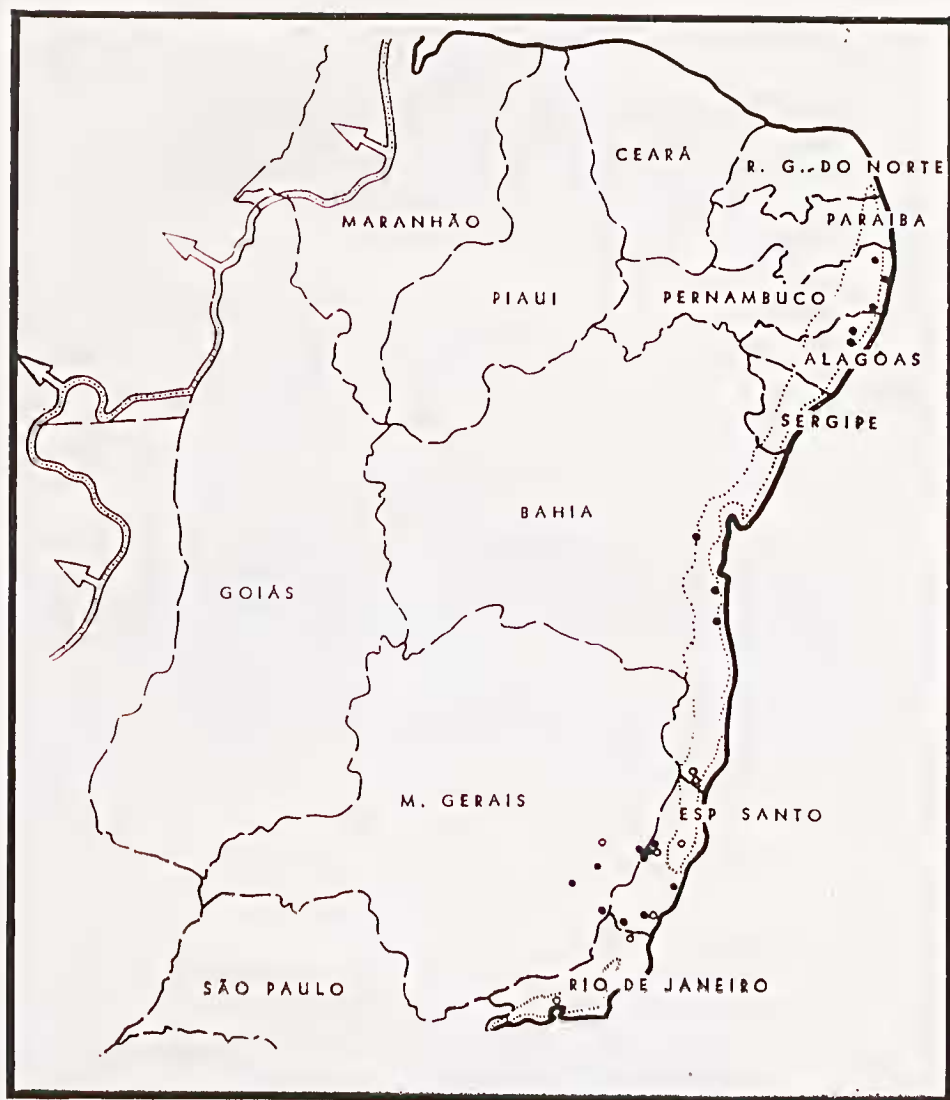
Diagnosis: A subspecies of *Lachesis muta* (Linnaeus) characterized by having very large and distinct spots on the upper side of the head a wide postocular black stripe the absence of wide and well contrasted light stripe between black postocular stripe and the upper surface of the head (Pl. XIV, fig. 2a) a rather triangular, instead of trapezoidal rostral shield; a very bright redish ground color and the supra-oculars strongly contrasted by surrounding black spots. Ventrals 214-247 in males; 226-246 in females; subcaudals 31-48 in males and females; dorsals 33-37 in males and females. *Lachesis muta noctivaga* is easily distinguishable from *Lachesis muta muta* by the characters mentioned above instead of: small spots on the upper side of head; a much smaller black postocular stripe, margined above by a light stripe; a truncated snout; a trapezoidal rostral; a more greyish ground color and supraoculars not strongly contrasted by surrounding black spots (Pl. XIV comp. 1 a, b, and 2, a, b, c). From *Lachesis muta stenophrys* Cope by the lower number of ventrals in the latter.

Description of type: IBH 17 957, female, from Vitória, Espírito Santo, Brasil. Dorsals 39-35-24; ventrals 222; caudals 33/31, + subcaudal scales; upper labials 9-9; lower labials 14-15. Body + head 1.720 mm, tail 150 mm; head 69 mm. Ground color yellowish white (in alcohol) redish brown in life, with 28½ black diamonds on the dorsum; belly white, some of posterior diamonds extending to the outer side of ventrals; ½ + 4 black, nearly annular diamonds on tail, extending to the outer border of subcaudals.

Head (Pl. XIV, fig. 2a) with several large black dots: a wide postocular stripe, narrowly separated above by an one scale wide, white stripe, from the black cephalic dots. The third upper labial longest.

Paratypes: *Alagoas:* Utinga I.B.H. n.º 1.140, 1.154. *Bahia:* Amargosa I.B.H. n.º 4.549; Ilhéus I.B.H. n.º 16.118, 16.923, M.N.R.J. n.º 3.039; Marahu I.B.H. n.º 3.057; Bahia (by State only) I.B.H. n.º 3.220 and 3.221. *Espírito Santo:* Baixo Guandu I.B.H. n.º 8.499, 8.605, 8.499; Vila Nova I.B.H. 10.001; Calçado I.B.H. 7.631; Cachoeiro do Itapemirim I.B.H. n.º 23.601. *Minas Gerais:* Cachoeirinha I.B.H. n.º 8.684; 9.309; 9.310, 9.308, 8.685; Carangola I.B.H. n.º 8.429, 8.439. *Pernambuco:* Recife I.B.H. n.º 7.162, 7.490, 4.548, 3.189, 2.734; Barreiras, I.B.H. 8.699, 8.698, 8.697; Grajahu I.B.H. n.º 2.739. Nazareth da Mata, I.B.H. n.º 10 (by State only) I.B.H. 8, 1.000, 1.023, 14.963 and 3.189. *Rio de Janeiro* (State or city?) U.M.M.Z. 65.887. C.D.Z. 145. The variation in scale counts is given under diagnosis. No sexual dimorfism in ventrals, dorsals or subcaudals.

Range: The forests along the Atlantic, from State Alagoas to Rio de Janeiro. All specimens are from the coastal forest (see map) the specimens which appear on the map out of this range are actually from the gallery forests of Rio Doce and affluents. (Map. X).



● — Localities of *Lachesis muta noctivaga*.

○ — Localities of *Lachesis muta noctivaga* from lit.

..... — Limits of Tropical coastal forest.

△ — Limits of *Lachesis muta muta*.

SUMMARY

Systematic and nomenclatural positions of several taxa were changed. The following taxa are described or revalidated: *Bothrops bilineatus smaragdinus* subsp. nov., *Bothrops marajoensis* sp. nov., *Bothrops moojeni* sp. nov., *Bothrops santicrucis* sp. nov., *Bothrops brazili* Hoge, *Bothrops pradoi* (Hoge), *Crotalus durissus cascavella* (Wagler), *Crotalus durissus collilineatus* (Amaral), *Crotalus durissus cumanaensis* Humboldt, *Crotalus durissus dryinus* Linnaeus, *Crotalus durissus marajoensis* subsp. nov., *Crotalus durissus ruruima* subsp. nov., and *Bothrops nummifer occiduum* nom. nov., *Bothrops megaera* Wagler.

Acknowledgments — We are indebted to the Fulbright Commission and Conselho Nacional de Pesquisas for their grants which permitted us to study the specimens in North American and European Museums; to the Fundo de Pesquisas do Instituto Butantan which supported several collecting trips and the execution of drawings. To the FAB (Brazilian Air Force) who always collaborates for transportation of the expeditions. It is impossible to list here the numerous officers who collaborated but there are a few to whom we are most deeply indebted: Brig. Faria Lima, Col. França and Major Campos.

We are also most deeply grateful to the following persons, for permission to study specimens of their collections or loaning them: Joseph Bailey, Charles Bogert, James Oliver, E. Williams, Netting, Neil Richmond, R. Inger, H. Marx, Doris Cochran, Walker, J. Guibé, Brongersma, H. Rendahl, R. Mertens, H. Wermuth, J. Eiselt, Parker, Bertha Lutz, Antenor de Carvalho, Janis Roze, Orcjas Miranda, J. M. Savage, Allan Leviton, W. E. Duellman.

We are also grateful to: Ralph Grantsau for drawings, Roberto Tinoco for maps, Joaquim Cavalheiro for help in scale counts, and to S. A. Romano for help scale counts and bibliographic research.

Addenda

Add: Page 118

BOTHIROPS COLOMBIENSIS Hallowell

1845 *Trigonocephalus colombiensis* Hallowell, Proc. Acad. Sci. Phila., 2:241-247

Type locality: "Republic of Colombia, within two hundred miles of Caracas".

Range: Venezuela except the high mountains and equatorial forests.

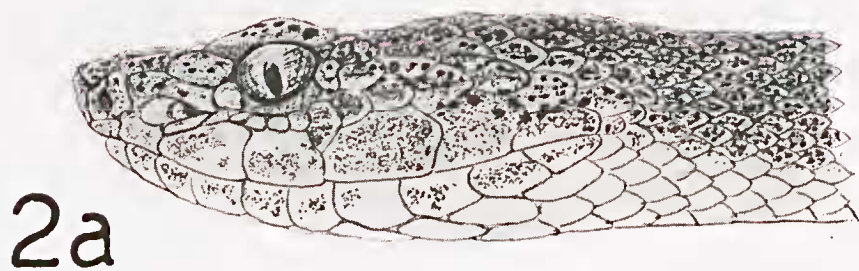
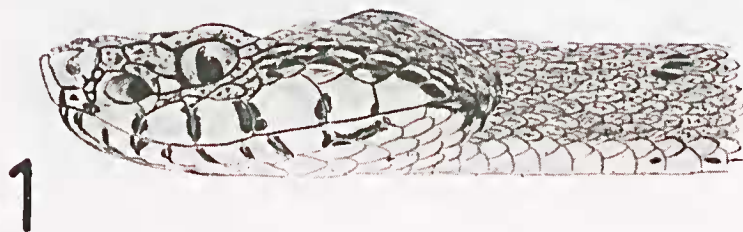
Add.: Page 127

BOTHIROPS NEUWIEDI MATTOGROSSENSIS Amaral

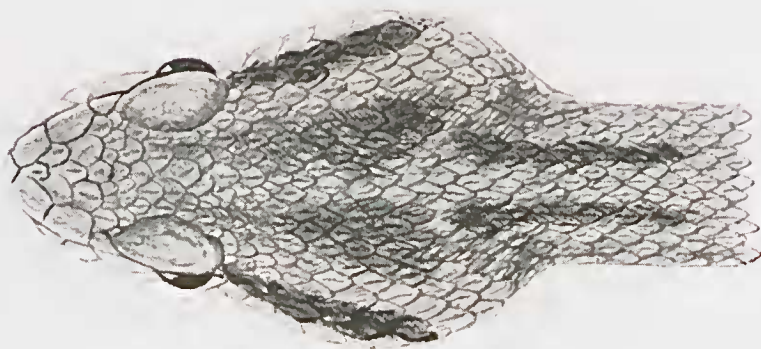
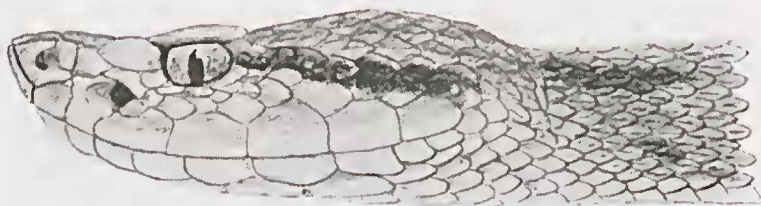
1925 *Bothrops neuwiedi mattogrossensis* Amaral, Contr. Harvard Inst. Trop. Biol. Med., Cambridge, Mass. 2:60; Tab. 14:6, 16:6-

Type locality: Miranda, State of Mato Grosso, Brasil.

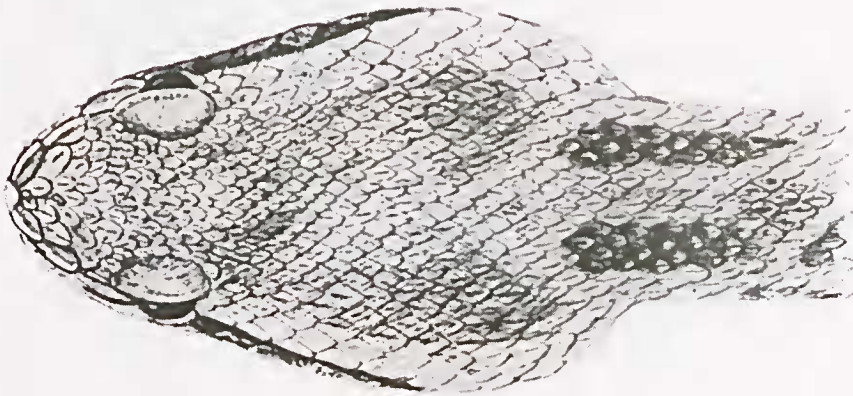
Range: Southern Mato Grosso, Brasil.



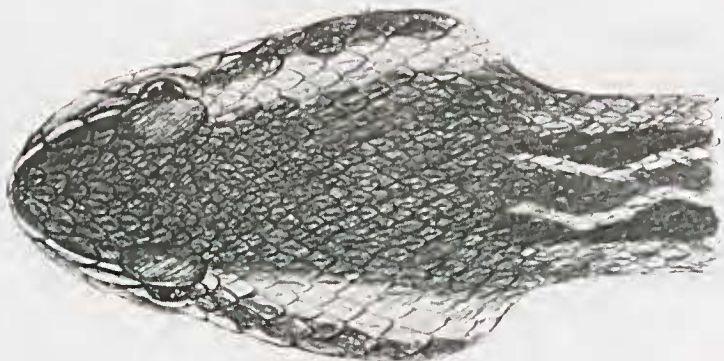
Pl. I — Fig. 1 — *Bothrops bilineatus bilineatus*. IBH 10 492, Espírito Santo, Brazil. Fig. 2a and 2b — *Bothrops bilineatus smaragdinus* subsp. nov. Paratype CDZ 1436 upper Rio Purus, Território do Acre, Brazil.



Pl. II — *Bothrops caribaeus*. Paratype IBH 23276 (form. MCZ 70201) Fond Citron,
St. Lucia Island.



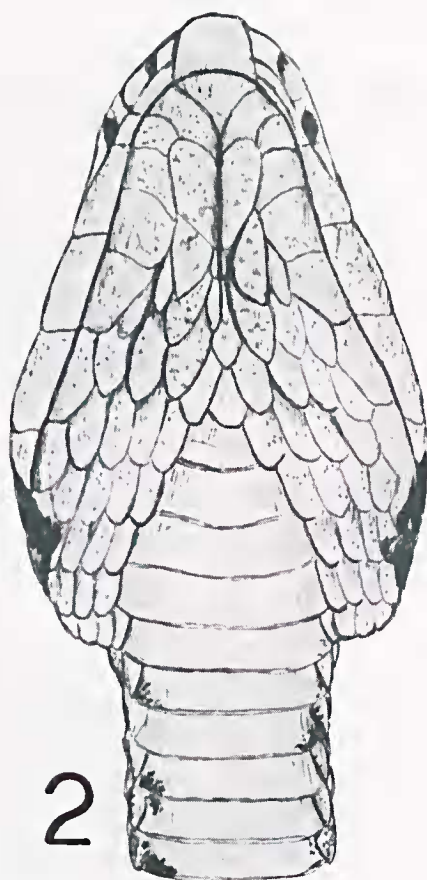
Pl. III — *Bothrops lanceolatus*. IBH 23 268 St. Pierre. Martinique.



Pl. IV — *Bothrops moojeni* subsp. nov. Holotype IBH 23 397, Brasília, Território Federal, Brazil.



1



2



1a

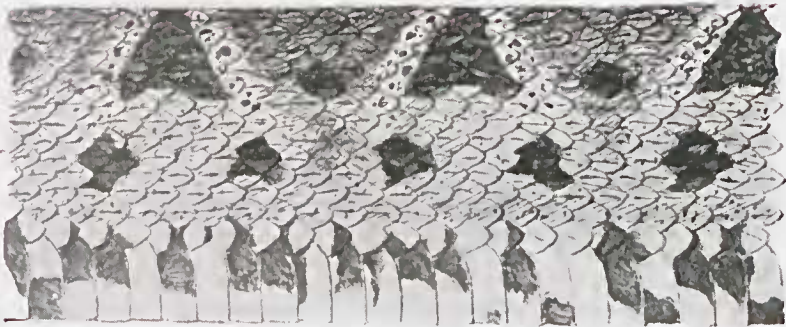
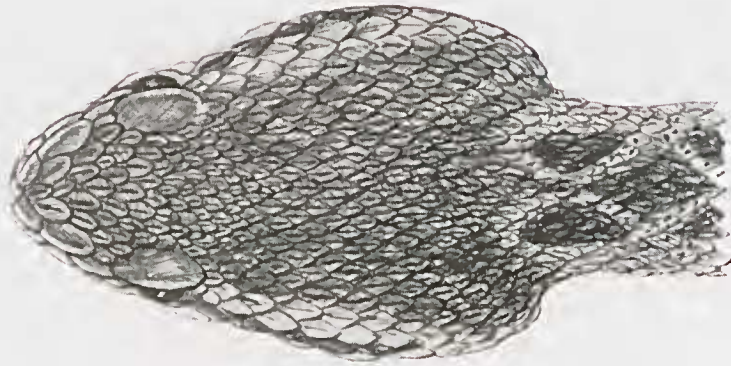
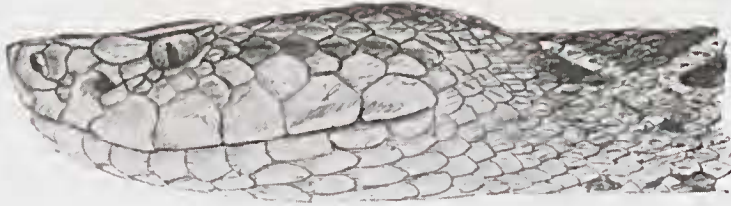


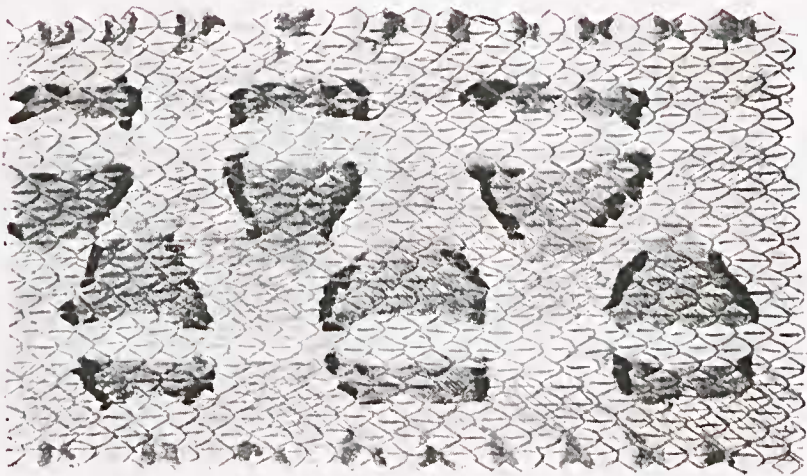
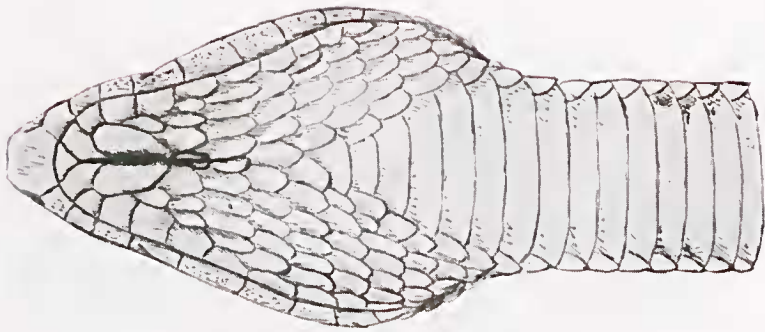
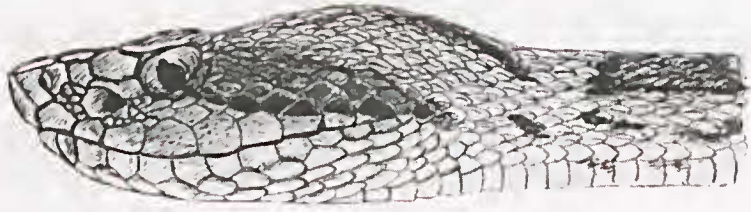
3



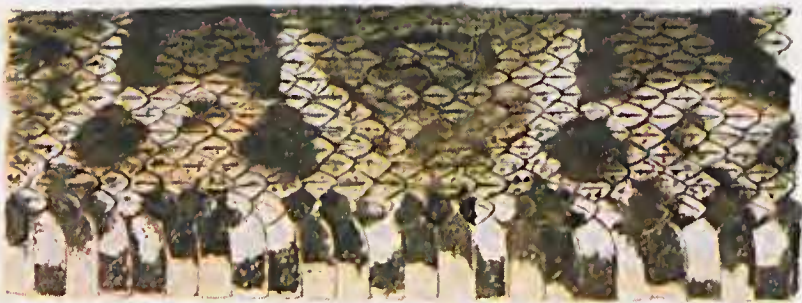
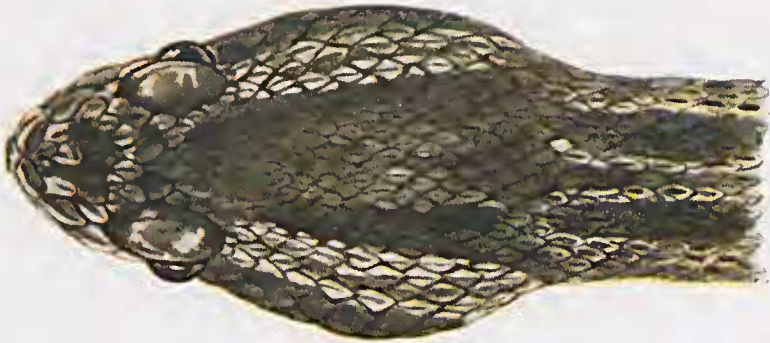
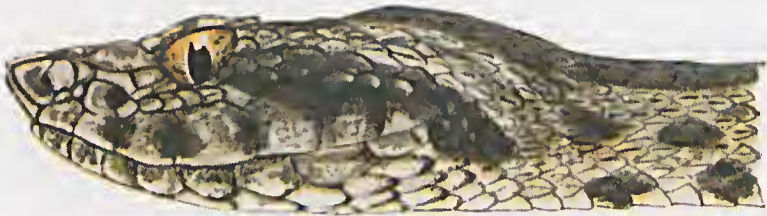
1b

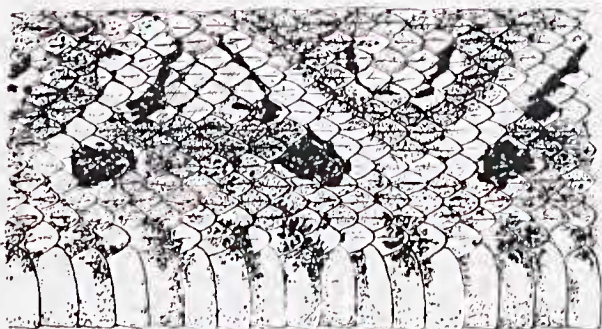
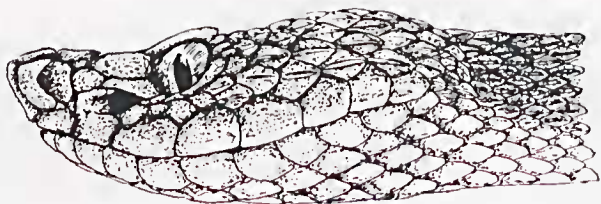
Pl. V — Fig. 1 and 1a — *Bothrops atrox*. IBII 23 453 (juvenil male), Manaus, Amazonas, Brasil. Fig. 1b — *Bothrops atrox* (juvenil male). Fig. 2 — *Bothrops moojeni* (juvenil male). Fig. 3 — *Bothrops asper* (juvenil male).

Pl. VI — *Bothrops asper*. IBH 2852, 4069, 4068. Tela, Honduras.



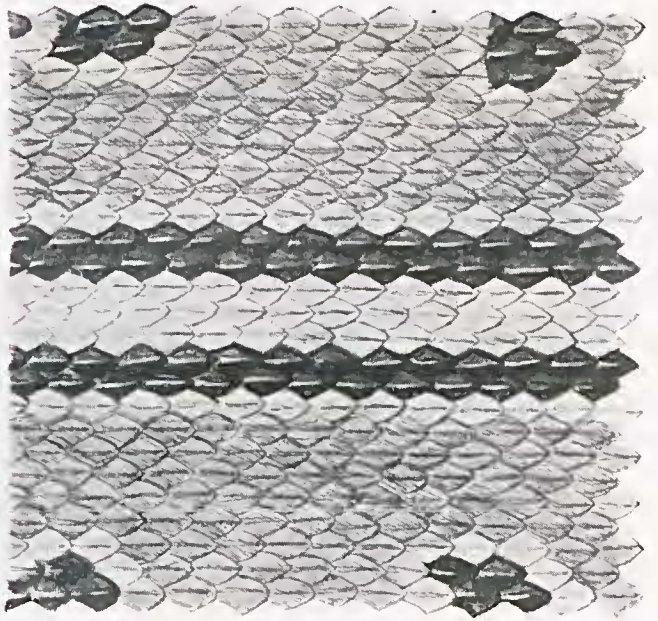
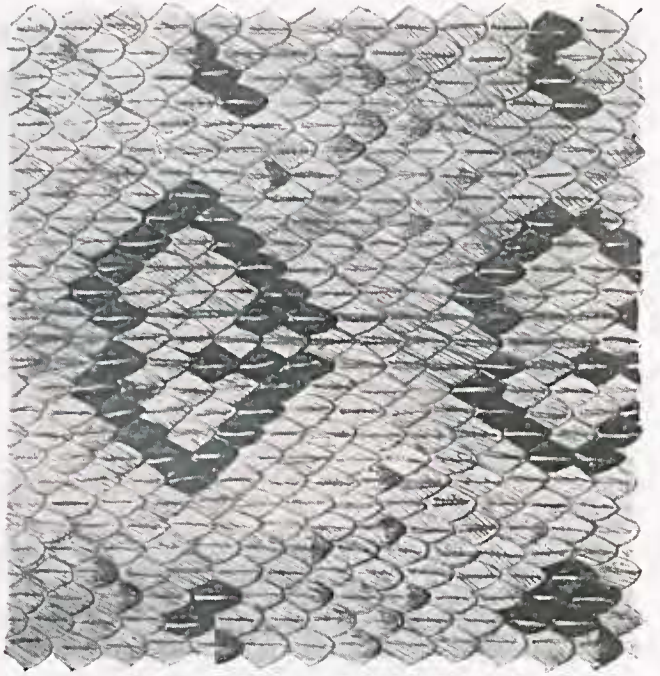
Pl. VII — *Bothrops neuwiedii diporus*. IBII 10 093, Baía de Asunción, Paraguay.

Pl. VIII — *Bothrops pradoi*. IBH 23 398. Colatina, Espírito Santo, Brazil.



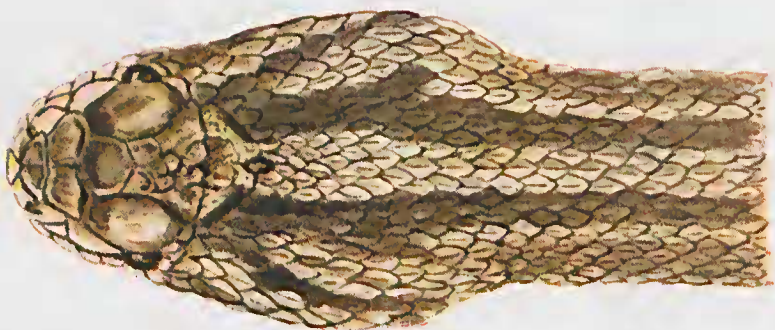
Pl. IX — *Bothrops sanctaerucis* sp. nov. Lateral view. Carn. Mus. 2890, Surutu, Bolivia; upper view IBH 24 576; upper Beni. Type specimen, Río Ichoa; dorsal pattern, Carn. Mus. 2890 (semi adult).

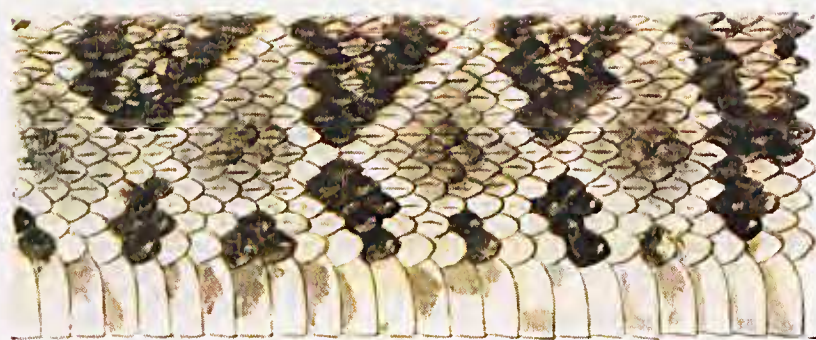
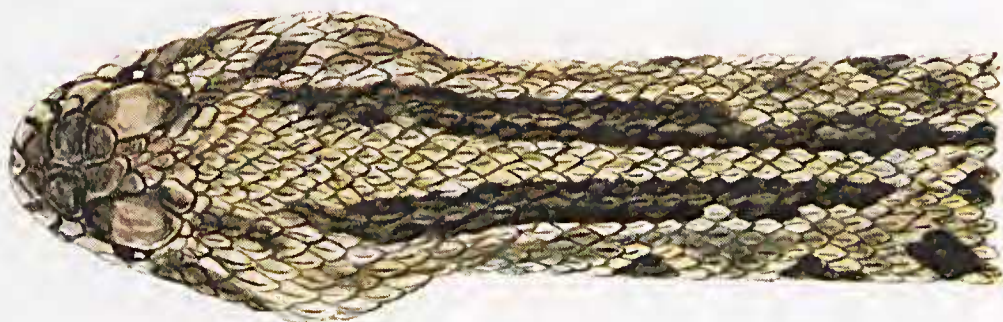
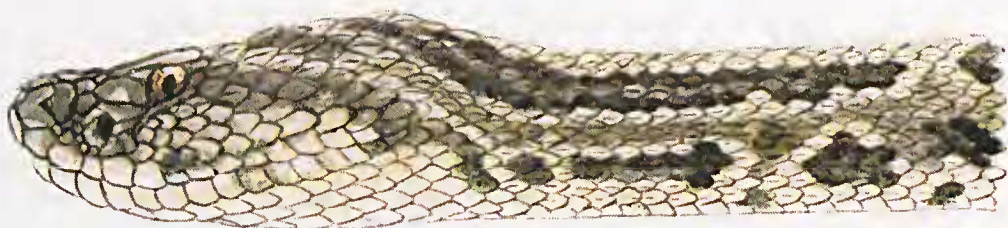
Pl. X — *Bothrops jararacussu*, IBH 23405.



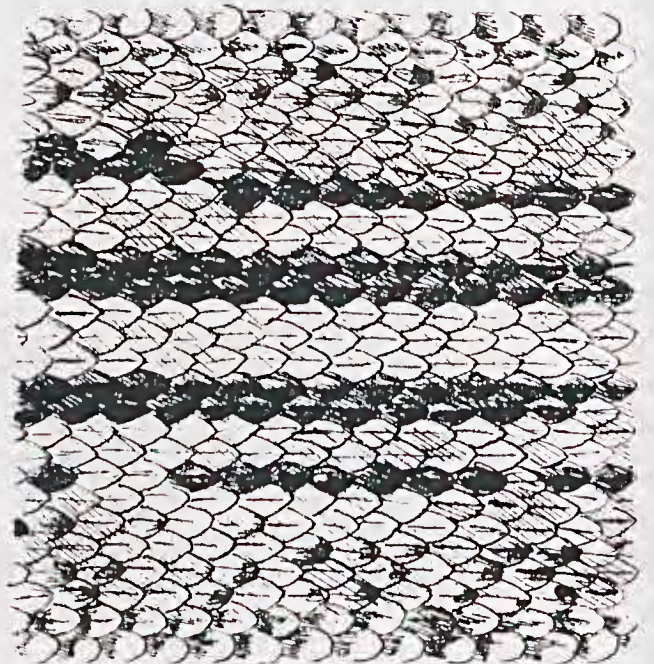
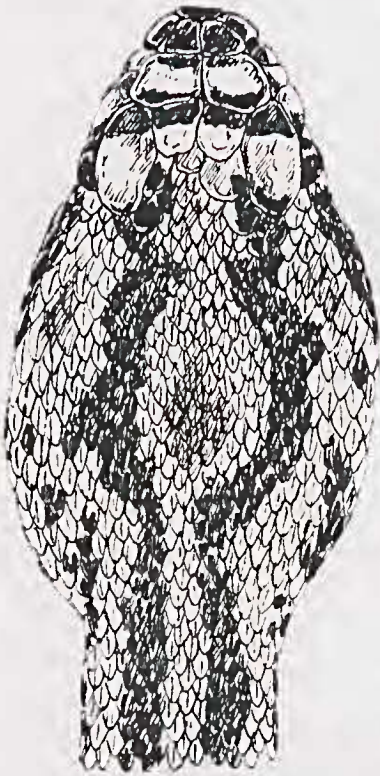
Pl. XI — *Crotalus durissus durissus*.

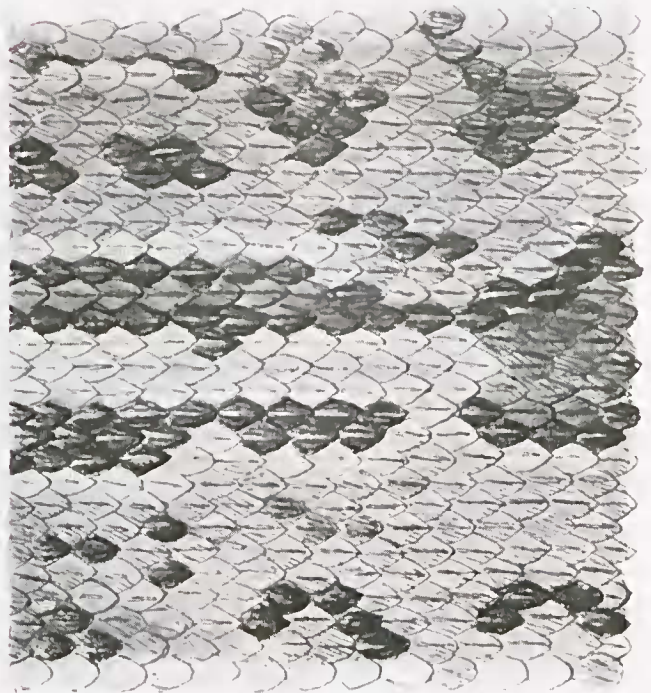
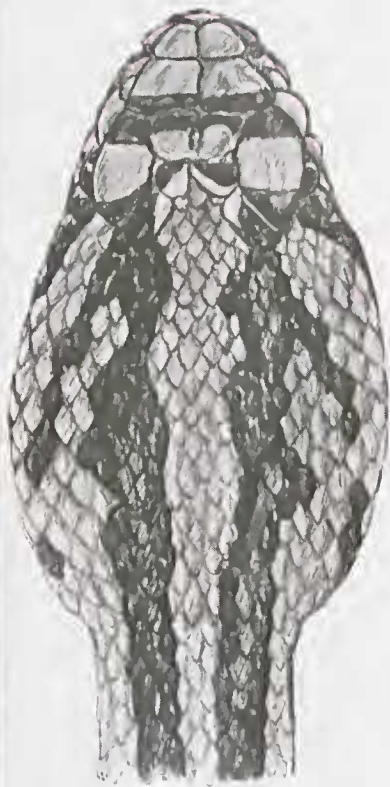


Pl. XII — *Crotalus durissus cascavella* (neotype).

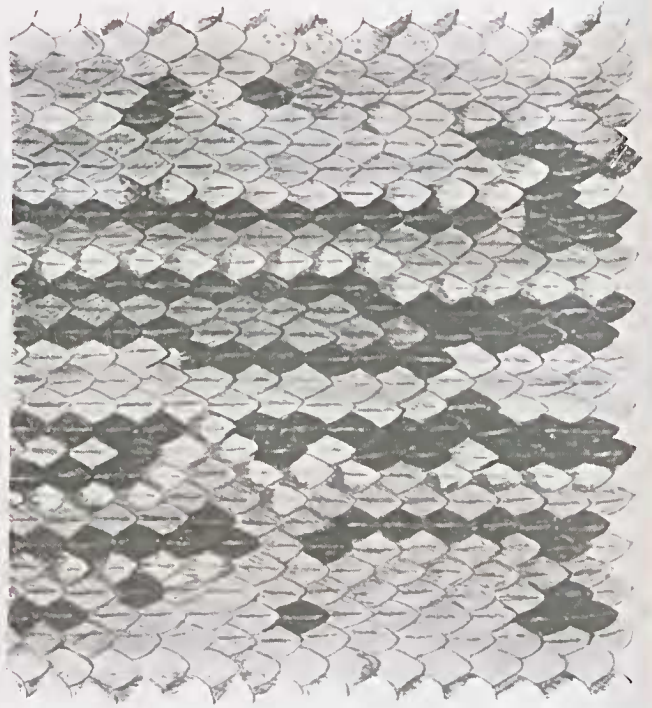
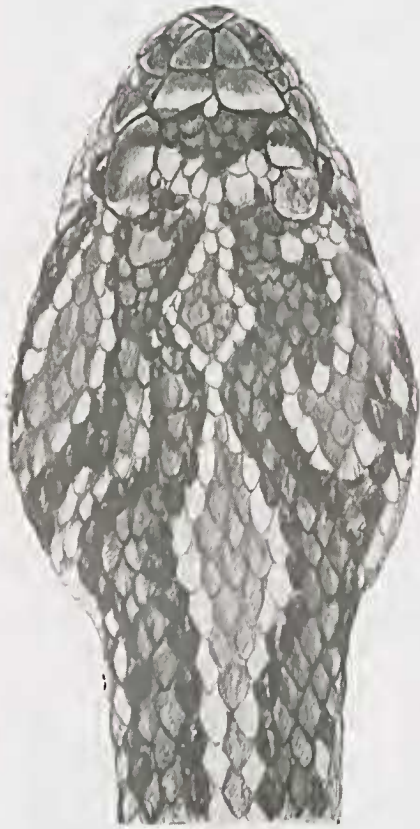


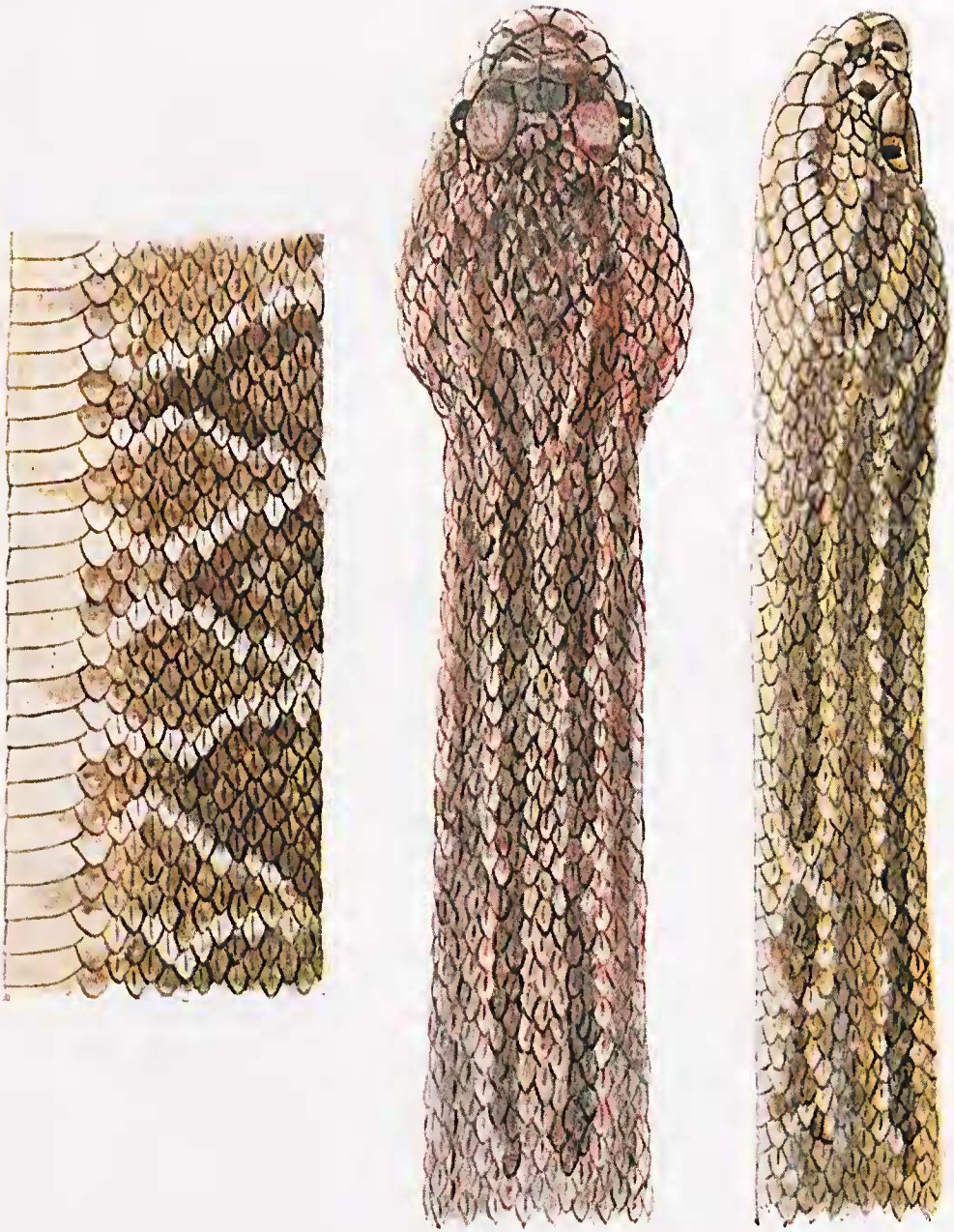
Pl. XIII — *Crotalus durissus collilineatus*. IBH 23 005, Brasilia, Ter. Federal, Brazil.

Pl. XIV — *Crotalus durissus dryinus*.



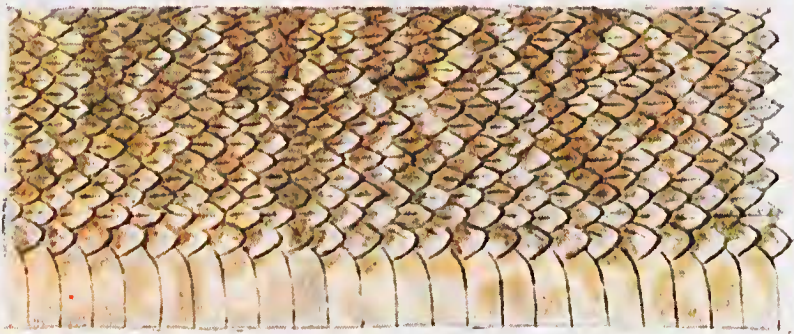
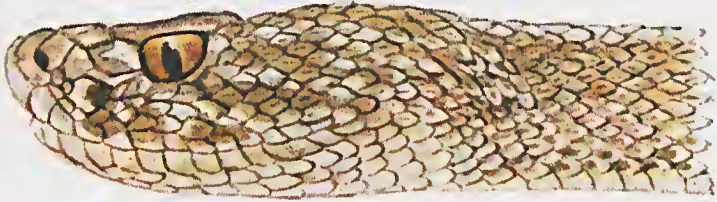
Pl. XV — *Crotalus durissus marajoensis* subsp. nov. Paratype.

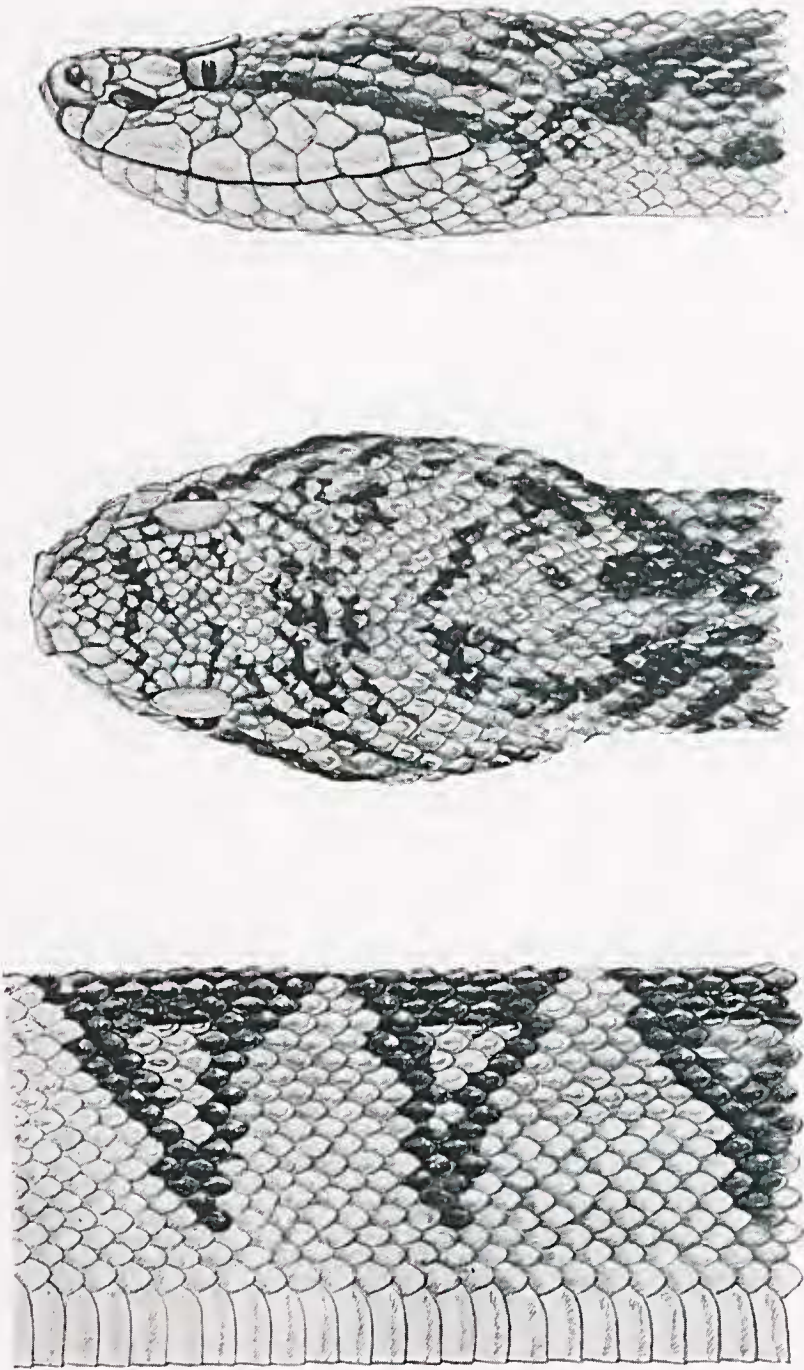
Pl. XVI — *Crotalus durissus ruruima*, Holotype 36 056 AMNH.



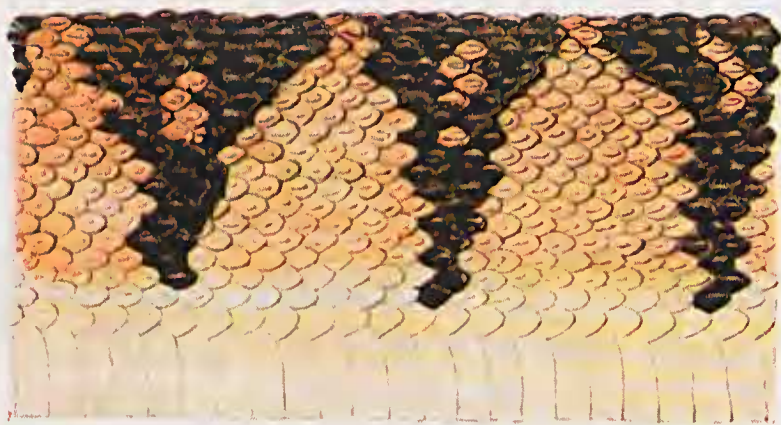
Pl. XVII — *Crotalus durissus terrificus*.



Pl. XVIII — *Crotalus durissus vegrandis*.



Pl. XIX — *Lachesis muta muta* (Paramaribo), S. S. M. Paramaribo

Pl. XX — *Lachesis muta noctivaga* subsp. nov. Holotype.